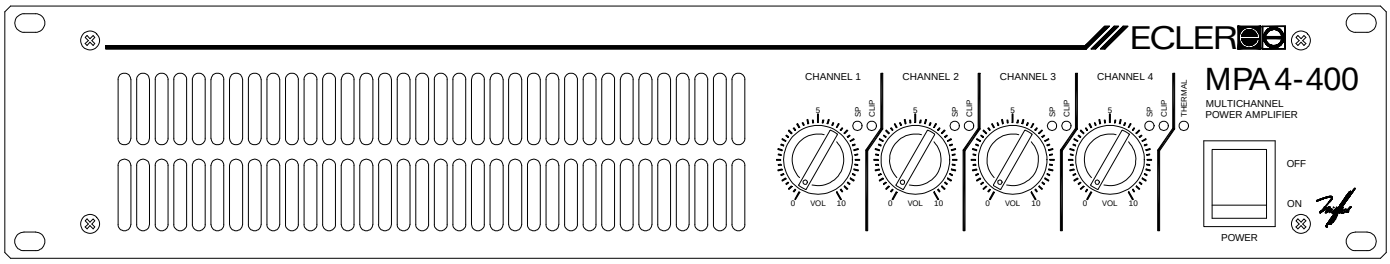
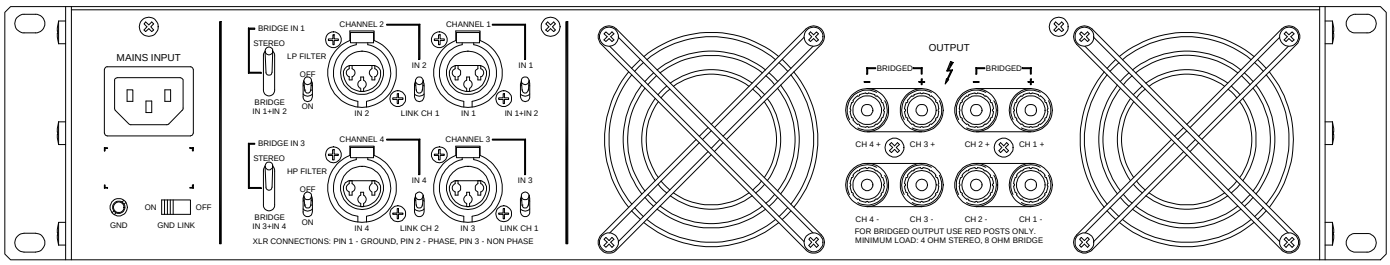
MPA4-400

SERVICE MANUAL





ECLER

AUDIO CREATIVE POWER

SERVICE MANUAL MPA4-400

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  - Leds + potentiometers

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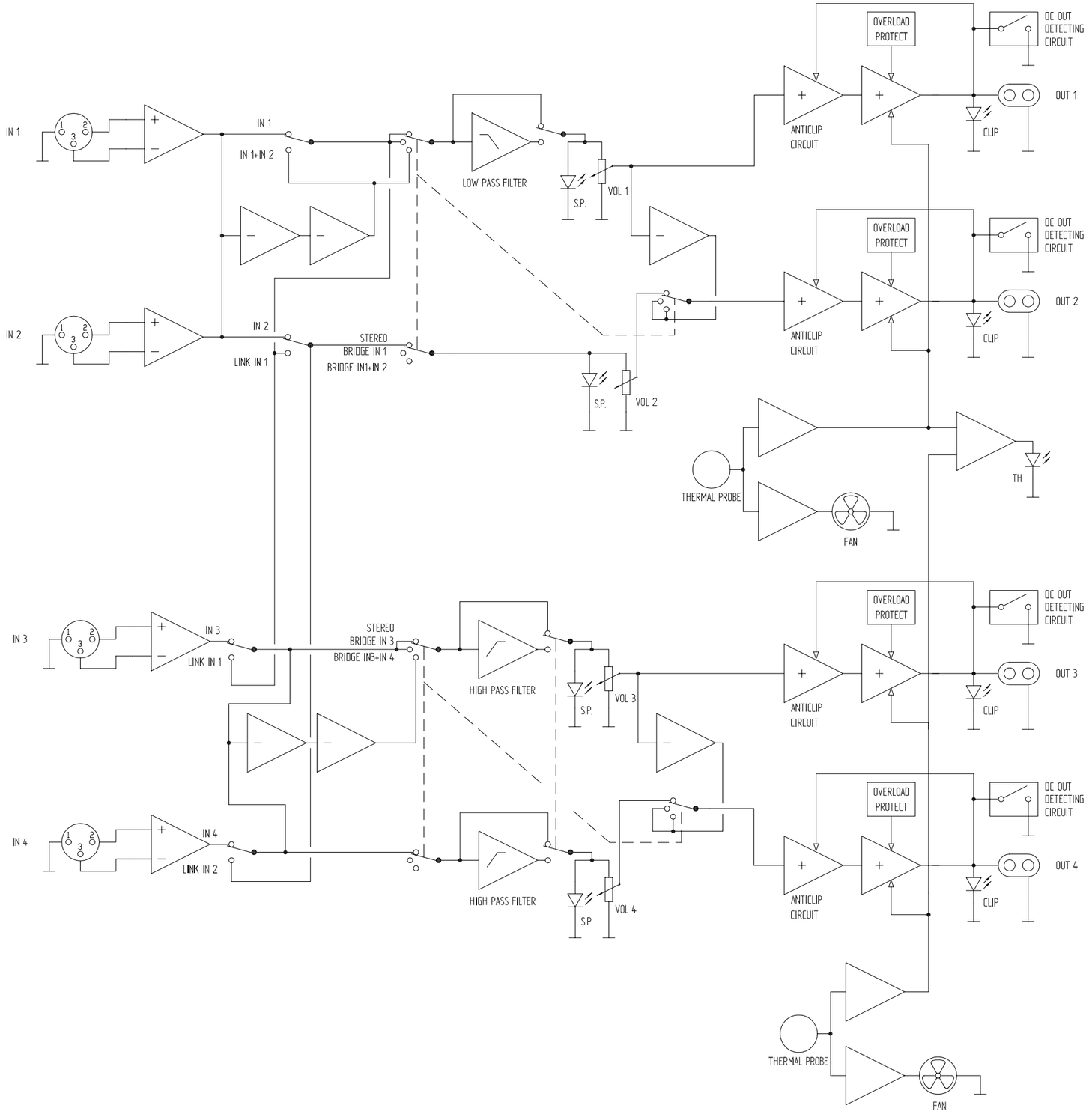


ECLER	drawn: Joan Queralt	date: 020920	project: EP14-02	product: MPA 4-400
number: 10.0630 version 01.00	approved:	title: **BLOCK DIAGRAM**		

The amplifying stage basic structure is actually the one commonly used until now, this is, a push-pull mounted A-B class amplifier, using P-type (IRFP9240) and N-type (IRFP240) mosfets.

The system's controlling core is a NE5534 OpAmp, which is internally compensated in order to obtain an amplifying gain ratio equal or greater than 3. The amplifier's feedback runs through a resistor and a capacitor associated to the OpAmp's non-inverting input.

Transistors BF871 and BF872 are common-base configured, becoming actually a current source structure. They accomplish a dual function: on one hand, they polarise the mosfet's gate-source junction, keeping them on their conduction knee. On the other hand, they carry out the OpAmp's output voltage variations, referred to signal ground.

The polarisation current adjustment is fixed by a 2k5 trimming potentiometer connected to the BF transistors base. This current is added to the current source's output, which passes through the BF-transistors load resistors. The bias current stability against temperature is fixed through the BD437 transistors. Their temperature- dependent base-emitter voltage curve is used to alter adequately the current source's reference voltage. As a consequence, if the temperature rises, the reference voltage decreases, thus the gate-source voltage also does, and finally the bias current also decreases.

The Zobel network, formed by a resistor-inductor-capacitor group, and which is located at the amplifier's output, intends to keep the amplifier's load impedance as constant as possible, no matter which load is connected to the stage's output, or which signal frequency is to be amplified, in order to prevent an inverted-phase feedback signal.

In order to avoid a DC offset on the output signal, a diac-triac tandem system is used, which shorts the output to signal ground when the DC level is enough to get the diac triggered. To prevent this from happening while carrying audio signal (sine-wave, music), the diac's reference voltage is taken from a filter formed by resistor R161 and capacitor C123.

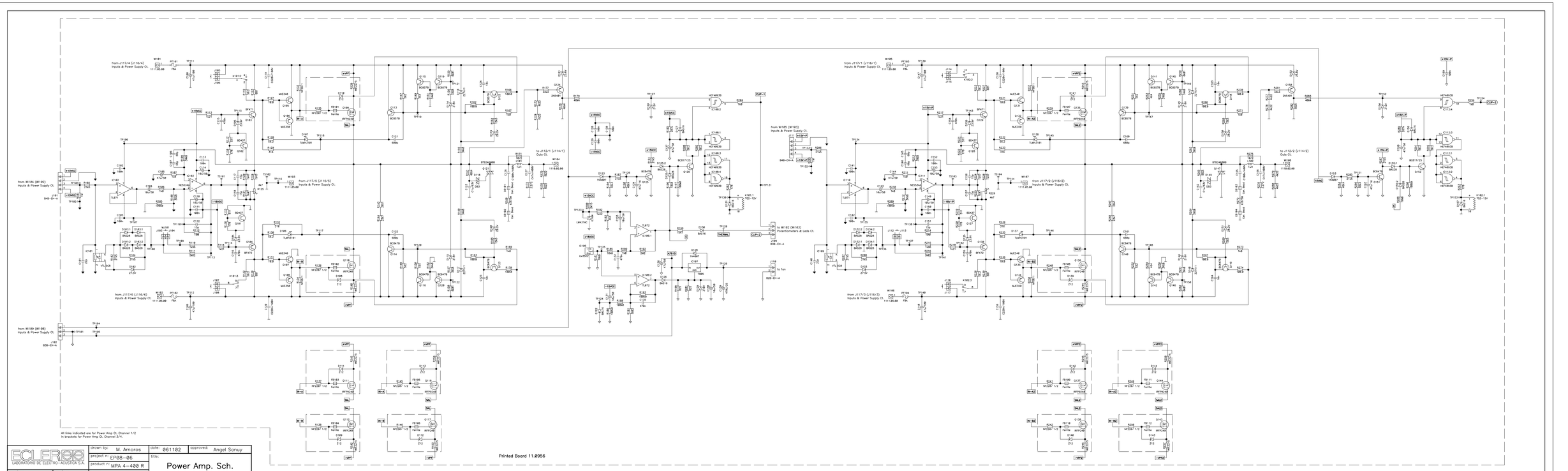
The protection circuitry supervises at any time the power consumed by the MOSFETS. The circuitry basically consists on two sections: MOSFET's drain current (Id) monitoring and drain-source voltage (Vds) monitoring.
When the drain current exceeds a certain limiting value, a transistor (called control-transistor) becomes conducting, together with an auxiliary circuitry (helper), formed by a transistor (which is the same type as the control-transistor) and a 8'2V Zener diode. This value determines the point where the auxillary circuitry starts to run. The helper-transistor's base-emitter junction curve is used to obtain a non-linear variation on the MOSFETS gate-source voltage control, and thus on their drain current.

Moreover, as the helper-transistor's base-emitter current is temperature-dependent, the controlling circuitry (basically the control-transistor) compensates the safe operation area (SOA) drift due to temperature.
If the MOSFET's drain-source voltage (Vds) drops too low, a second circuitry actuates to alter the control-transistor's triggering level, obtaining a SOA-like curve section and a current stage, which can be adjusted adequately in order to maintain the MOSFET's power consumption as close as possible to its SOA.

Moreover, the amplifier also includes an ANTICLIP system.
When the amplifier reaches its clipping level, the OpAmp becomes unable to keep the system under control, and as a consequence ±V peaks appear at its output (15V power supply). This peaks are used to be rectified and sent to an optocupler (led-resistor) which modifies its impedance as a function of those peaks' amplitude. The resulting impedance is part of a voltage divider, together with the amplifier's input impedance. So, as the optocoupler increases its impedance, the amplifier's input signal level decreases until the system becomes stable.

Also a dual-function temperature control circuitry is provided:
- Temperature-depending control of the cooling fan speed, whose voltage supply is variable between 7 and 14 Vac.
- Amplifier shutdown when temperature exceeds approximately 90ºC.
The circuitry is formed by LM35D-type IC, which acts like a thermal probe, an amplifier, thermal probe level comparator and a 7805-type voltage regulator.
The amplifier is responsible for the cooling fan speed control. The comparator triggers a relay, which cuts off the MOSFETs' bias current by shunting a 22Ω resistance to the BF-type transistors' load resistors. This way, the output signal of the amplifier is effectively cutted off.

The STAND-BY circuit.
This circuit keeps the safety relay closed for about 10 seconds, thus the MOSFET's bias current is cutted off during this period, until the whole system reaches again a voltage-stable situation. Due to this, hearing annoying transients and noises during start up through the loudspeakers is avoided. This delay is obtained by a RC-cell, where R = 287K, and C = 47μF/50V. During start up, this RC-cell's voltage smoothly rises until the 40106-type Trigger-Schmitt trigging level is reached, and the amplifier starts functioning. C = 47μF resets or discharges when the unit is turned off. During a short period of time, a BC817-type transistor acts like a switch, connecting two 75Ω parallel resistors to C = 47μ/50V.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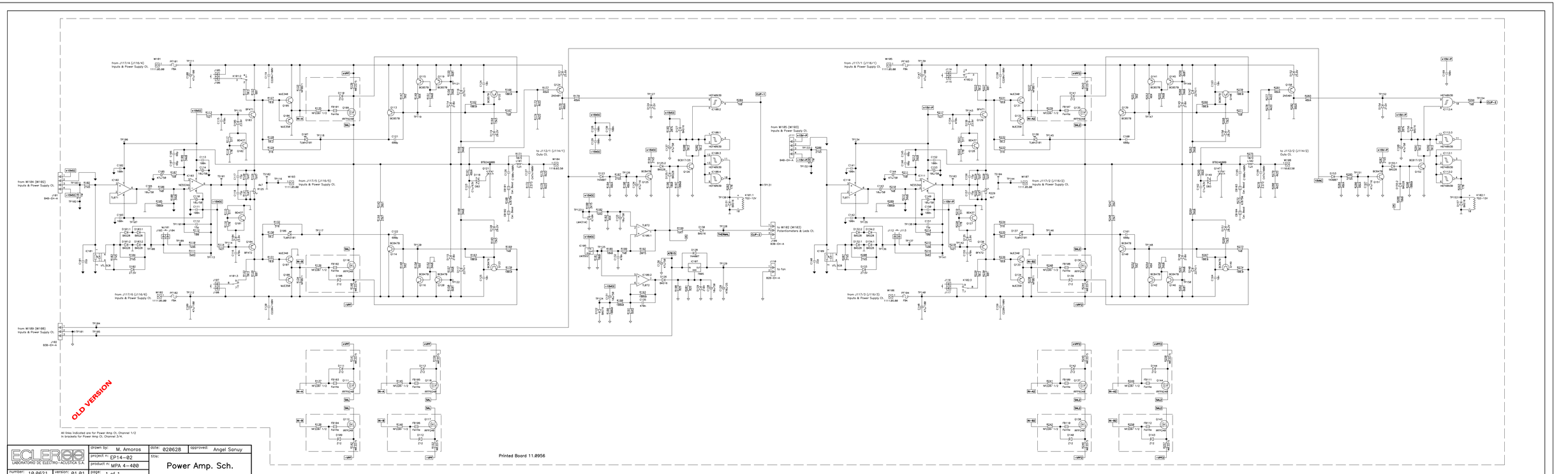
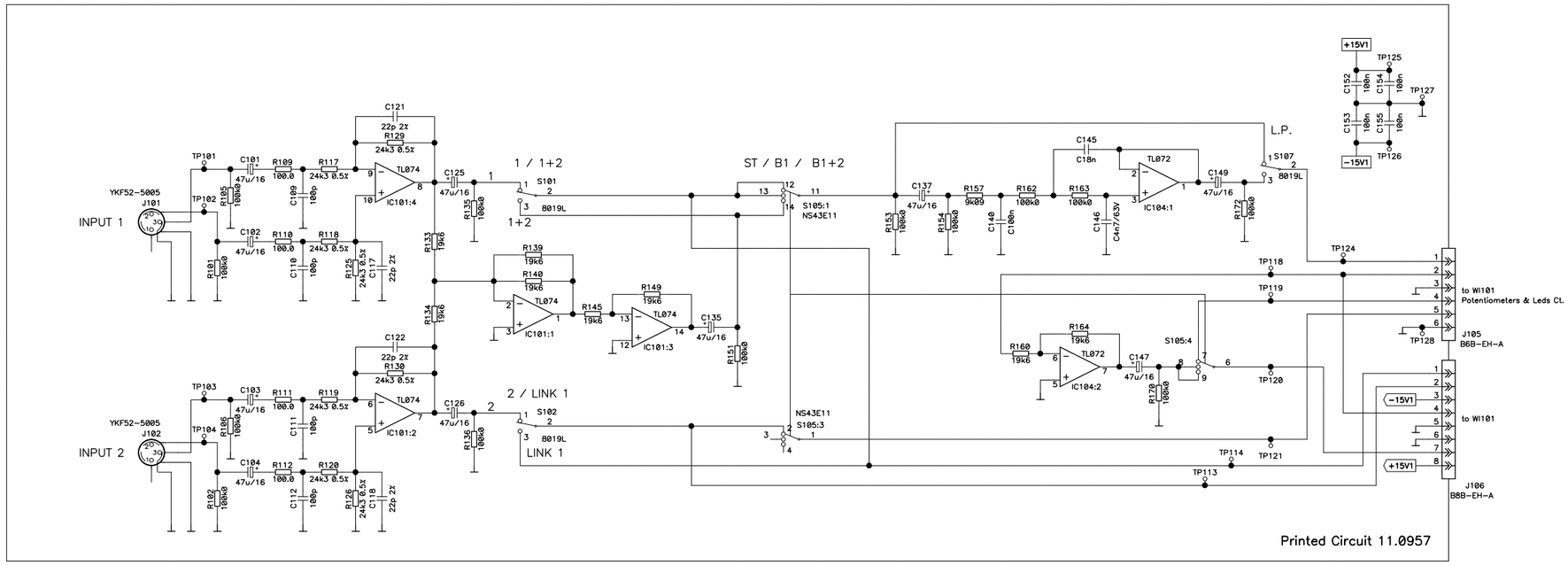
Inputs & Power Supply Ct.
from J117/5 (J116/5)
Inputs & Power Supply Ct.
from J117/6 (J116/6)
Inputs & Power Supply Ct.
from W104 (W182)
Inputs & Power Supply Ct.
from W109 (W188)
Inputs & Power Supply Ct.
to J112/1 (J114/1)
Outs Ct.
from W185 (W183)
Inputs & Power Supply Ct.
to W182 (W183)
Potentiometers & Leds Ct.
to fan
from J117/1 (J116/1)
Inputs & Power Supply Ct.
from J117/2 (J116/2)
Inputs & Power Supply Ct.
from J117/3 (J116/3)
Inputs & Power Supply Ct.
to J112/2 (J114/2)
Outs Ct.
All links indicated are for Power Amp Ct. Channel 1/2
In brackets for Power Amp Ct. Channel 3/4.
Printed Board 11.0956

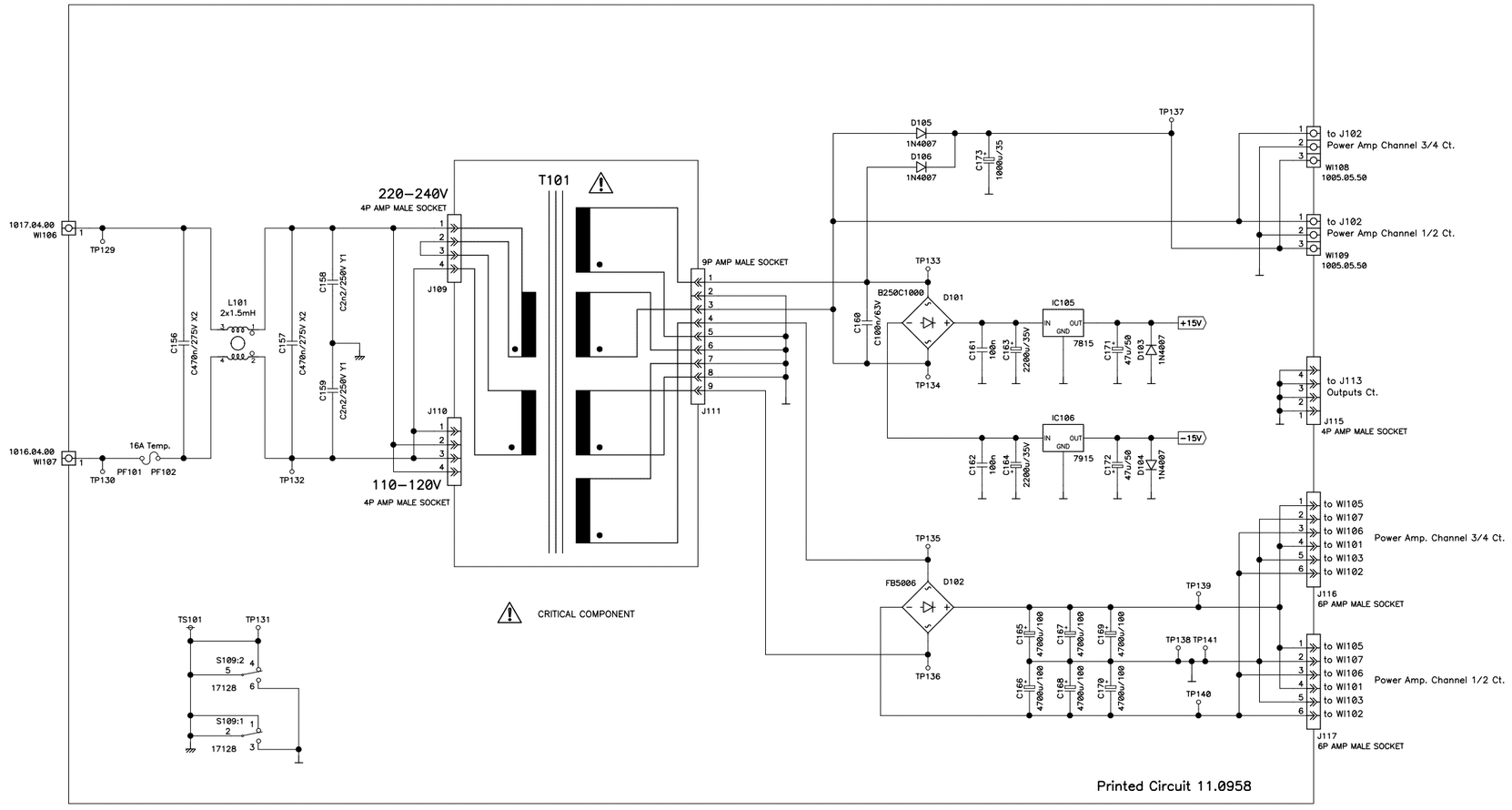
ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	drawn by: M. Amoros	date: 061102	approved: Angel Sanuy
	project n: EPQ8-86	title: Power Amp. Sch.	
	product n: MPA 4-400 R		
number: 10.0621	version: 01.02	page: 1 of 1	

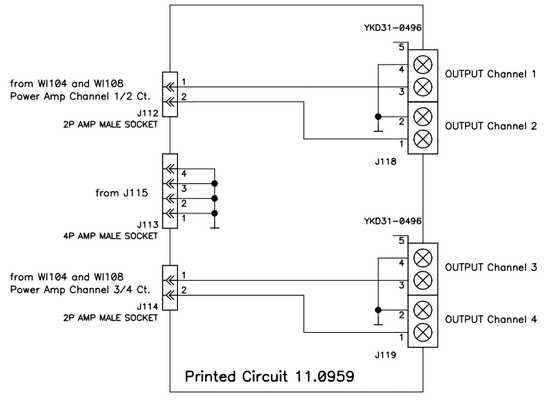

OLD VERSION
All links indicated are for Power Amp Ch. Channel 1/2
In brackets for Power Amp Ch. Channel 3/4.
Printed Board 11.0956

ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	drawn by: M. Amoros	date: 020628	approved: Angel Sanuy
	project n°: EP14-82	title: Power Amp. Sch.	
	product n°: MPA 4-400		
number: 10.0621	version: 01.01	page: 1 of 1	

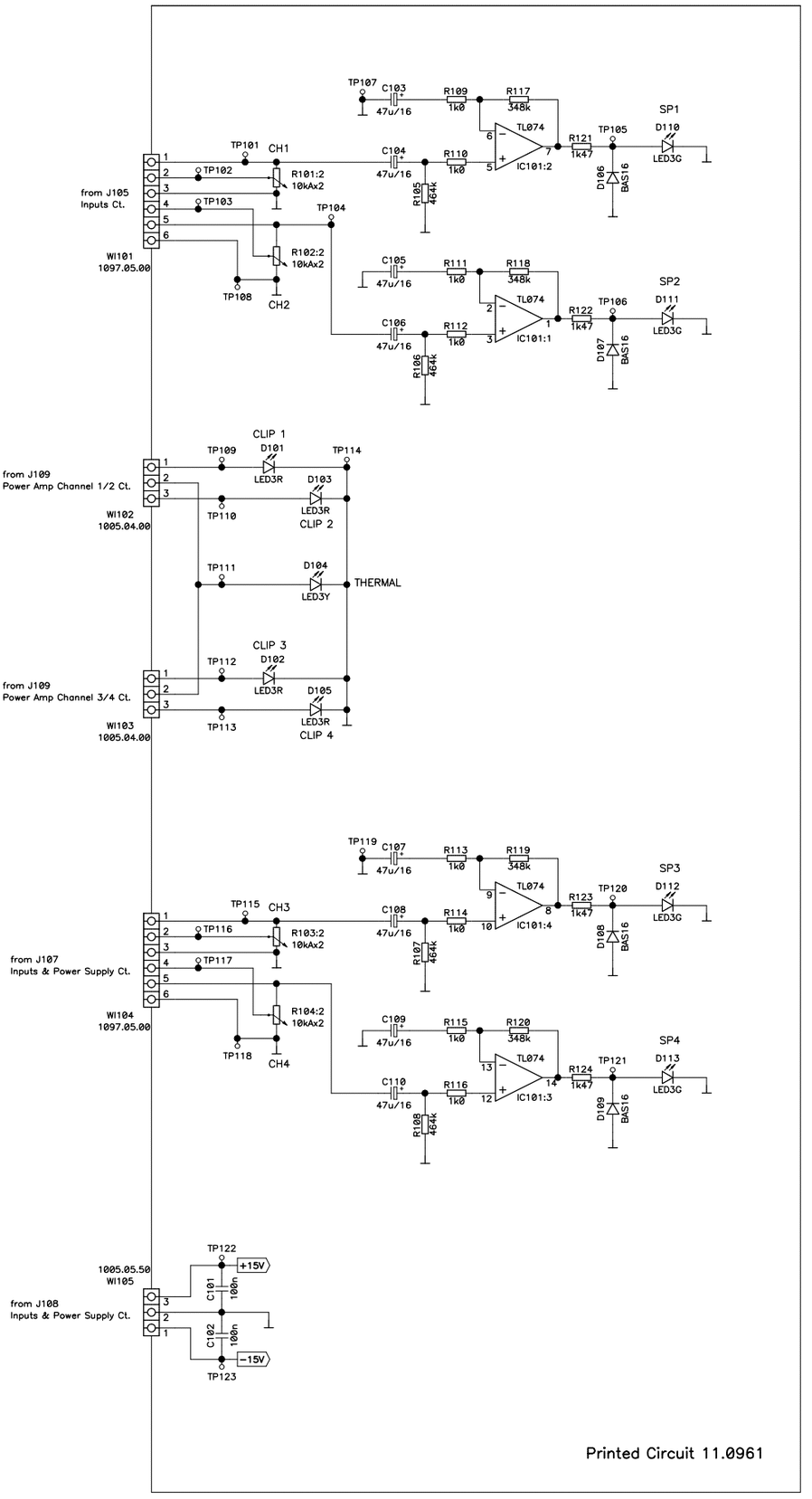


ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	drawn by: M. Amoros	date: 020718	approved: Angel Sanuy	
	project n: EP14-02	title: Inputs Sch.		
	product n: MPA 4-400			
number: 10.0629	version: 01.02	page: 1 of 2		

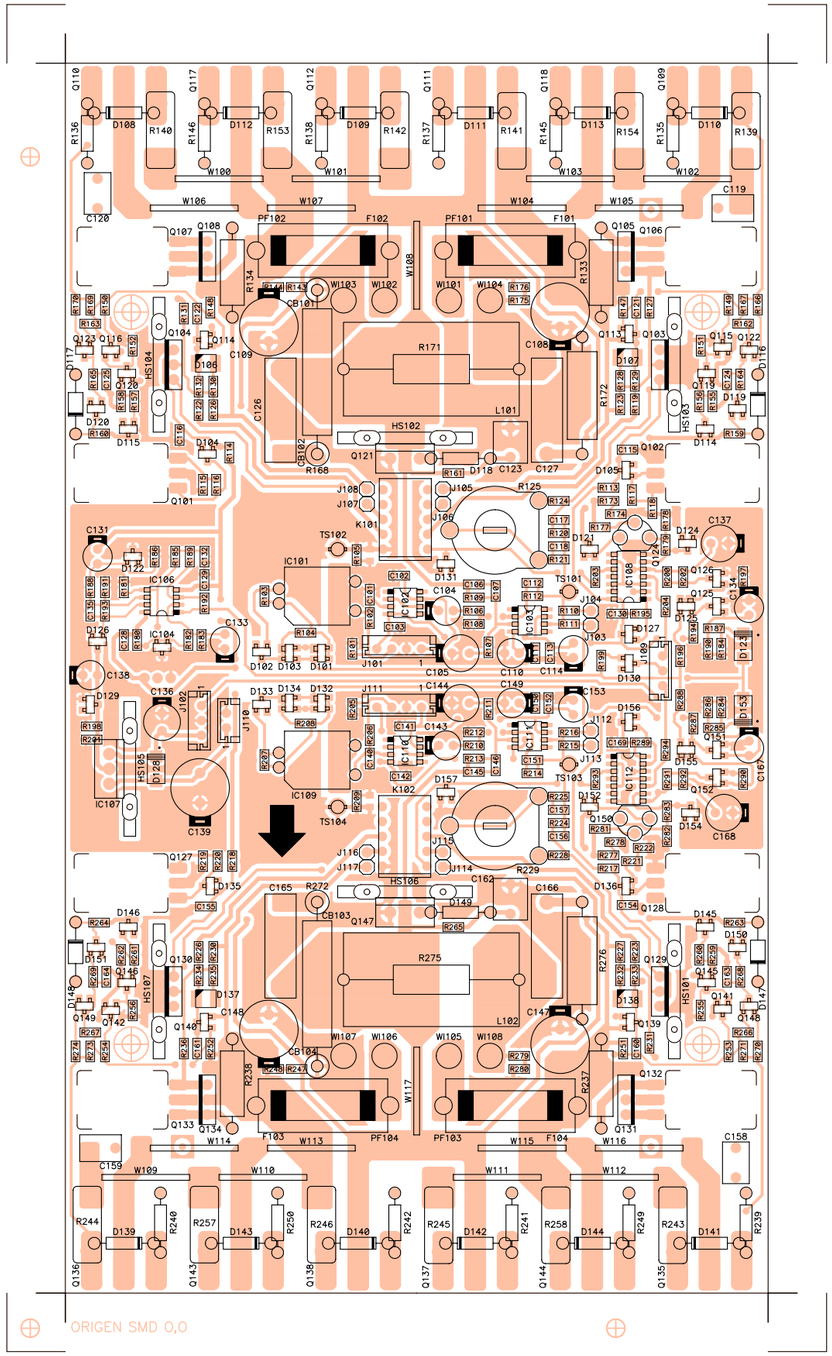




ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	drawn by: M. Amoros	date: 020718	approved: Angel Sanuy	
	project n: EP14-02	title: Power Supply + Out		
	product n: MPA 4-400			
number: 10.0629	version: 01.02	page: 2 of 2		



ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	drawn by: M. Amoros	date: 020718	approved: Angel Sanuy	
	project n: EP14-02	title: Leds + Potentiomtrs Sch.		
	product n: MPA 4-400			
number: 10.0632	version: 01.02	page: 1 of 1		



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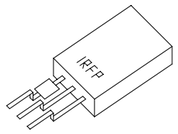
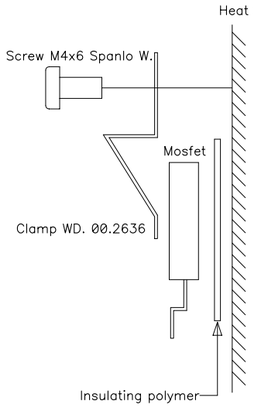
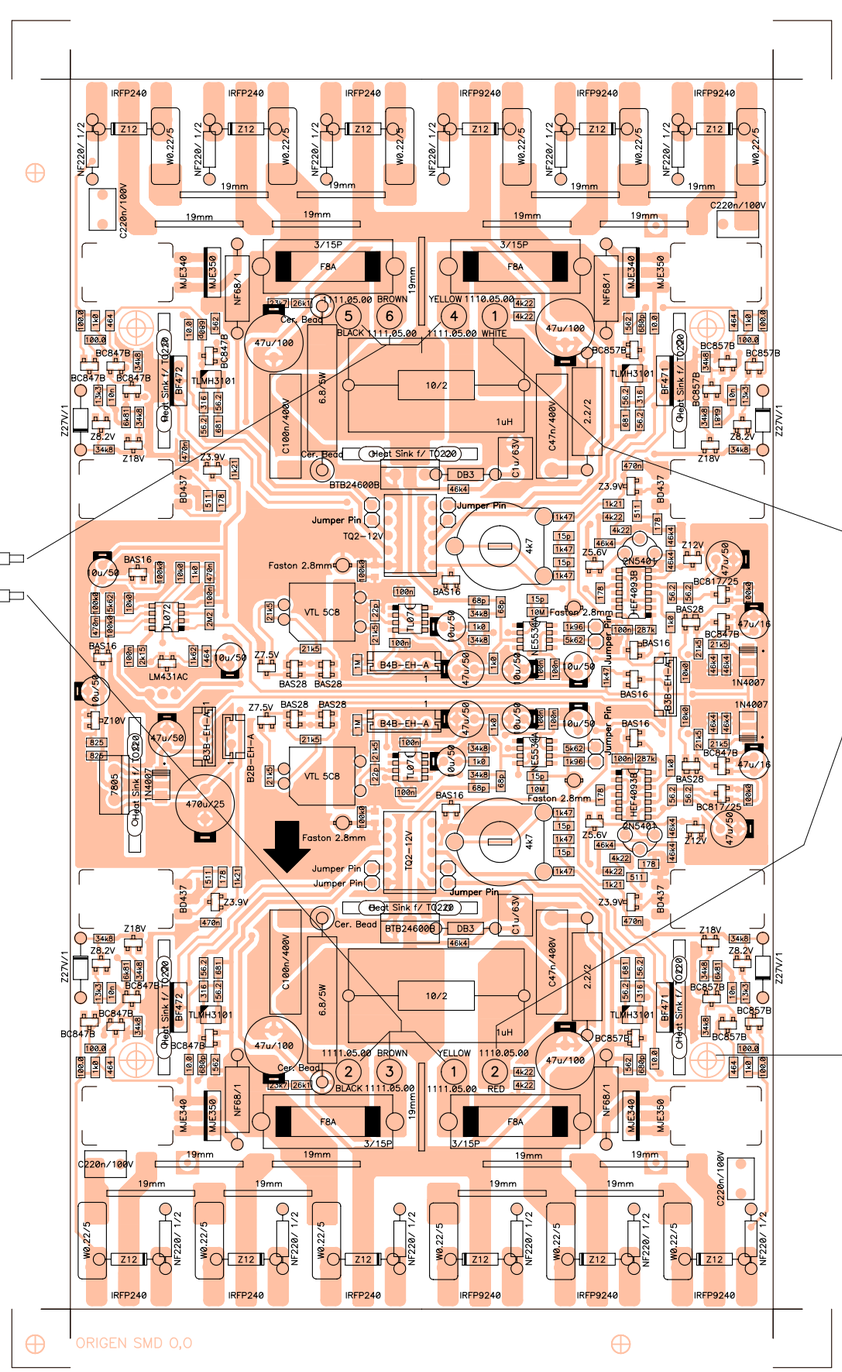
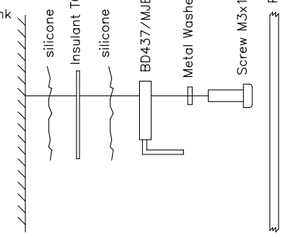
number: 33.0806	version: 01.03	project n: EP08-06	title: Power Amp. Ct.
drawn by: M. Amoros	date: 061102	product n: MPA 4-400 R	
		approved: Angel Sanuy	

Detail of the ferrite position









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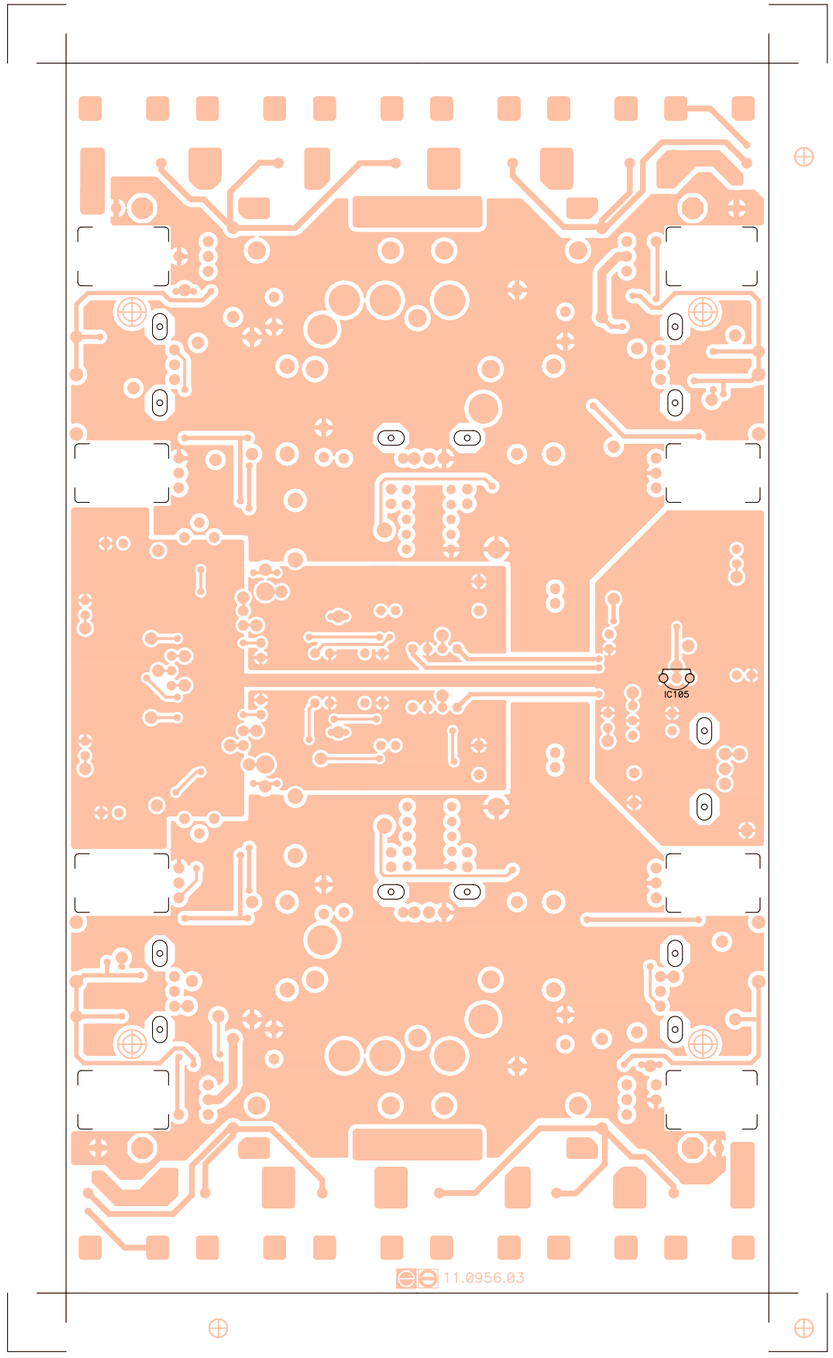
drawn by: M. Amoros	date: 061102	product n: MPA 4-400 R	
		approved: Angel Sanuy	



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number: 33.0808	version: 01.03	project n: EP08-06	title: Power Amp. Ct.
drawn by: M. Amoros	date: 061102	product n: MPA 4-400 R	
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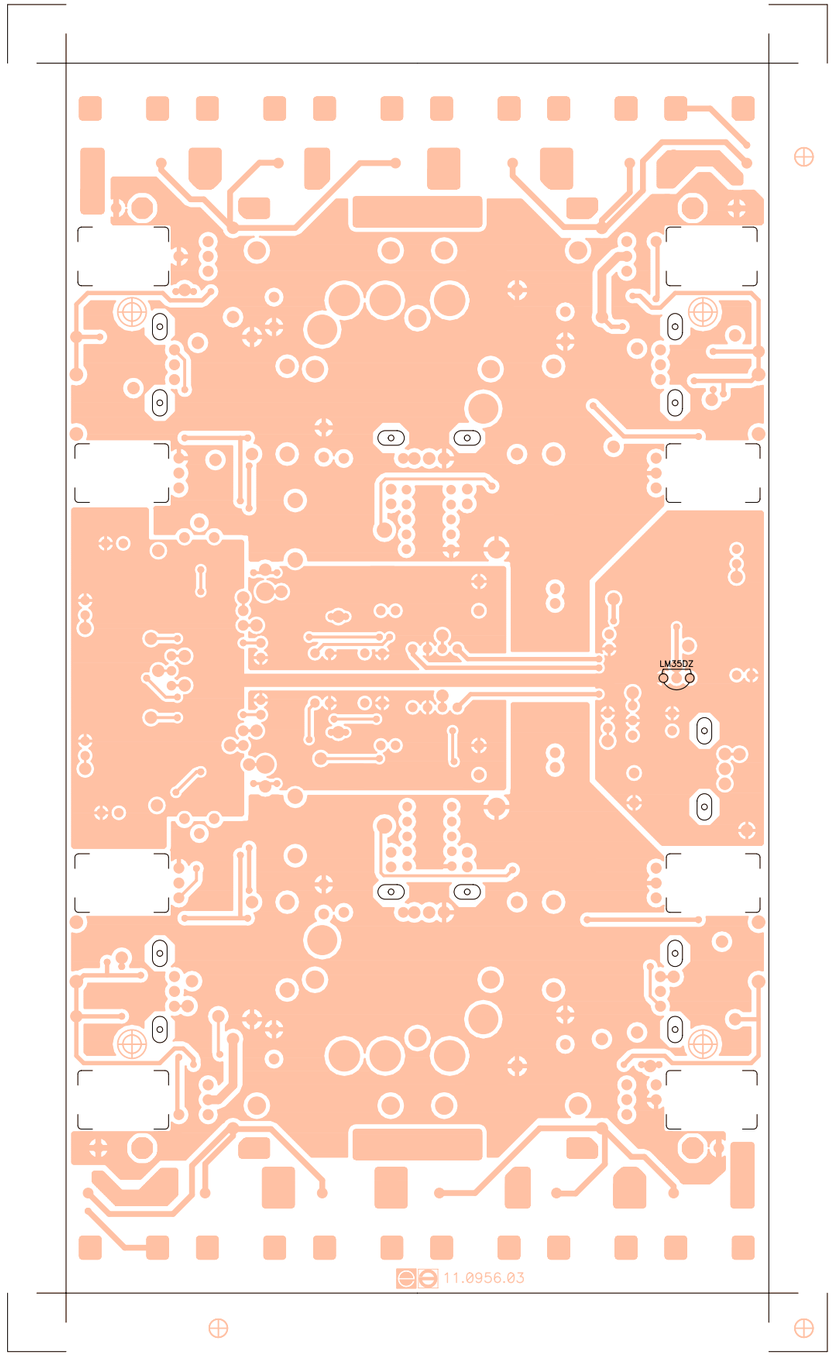

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number: 33.0809	version: 01.03	project n: EP08-06	title: Power Amp. Ct.
drawn by: M. Amoros	date: 061102	product n: MPA 4-400 R	
		approved: Angel Sanuy	

PARTS LIST: PRINTED CIRCUIT 11.0956.03.01

Code	Description	Reference
FCXCD12200	22p	C101
FCXCD41000	100n	C102
FCXCD41000	100n	C103
FCCE250100	10u/50	C104
FCCE250470	47u/50	C105
FCXCD16800	68p	C106
FCXCD16800	68p	C107
FCCE350470	47u/100	C108
FCCE350470	47u/100	C109
FCCE250100	10u/50	C110
FCXCD41000	100n	C111
FCXCD11500	15p	C112
FCXCD41000	100n	C113
FCCE250100	10u/50	C114
FCXCD44700	470n	C115
FCXCD44700	470n	C116
FCXCD11500	15p	C117
FCXCD11500	15p	C118
FCCDK52200	C220n/100V	C119
FCCDK52200	C220n/100V	C120
FCXCD26800	680p	C121
FCXCD26800	680p	C122
FCCDK20010	C1u/63V	C123
FCXCD40100	10n	C124
FCXCD40100	10n	C125
FCCDH71100	C100n/400V	C126
FCCDH71047	C47n/400V	C127
FCXCD41000	100n	C128
FCXCD41000	100n	C129
FCXCD41000	100n	C130
FCCE250100	10u/50	C131
FCXCD44700	470n	C132
FCCE250100	10u/50	C133
FCCE100000	47u/16	C134
FCXCD44700	470n	C135
FCCE250470	47u/50	C136
FCCE250470	47u/50	C137
FCCE250100	10u/50	C138
FCCE154700	470u/25	C139
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FCXCD41000	100n	C141
FCXCD41000	100n	C142
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FCCE250470	47u/50	C144
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FCXCD16800	68p	C146
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FCCE350470	47u/100	C148
FCCE250100	10u/50	C149
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FCXCD41000	100n	C152
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FCXCD11500	15p	C156

PARTS LIST: PRINTED CIRCUIT 11.0956.03.01

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FCXCD26800	680p	C160
FCXCD26800	680p	C161
FCCDK20010	C1u/63V	C162
FCXCD40100	10n	C163
FCXCD40100	10n	C164
FCCDH71100	C100n/400V	C165
FCCDH71047	C47n/400V	C166
FCCE100000	47u/16	C167
FCCE250470	47u/50	C168
FCXCD41000	100n	C169
FCPERL2550	Cer. Bead	CB101
FCPERL2550	Cer. Bead	CB102
FCPERL2550	Cer. Bead	CB103
FCPERL2550	Cer. Bead	CB104
FCCI009560	Printed Board 11.0956	CI101
FCXDDBAS28	BAS28	D101
FCXZ000075	Z7.5V	D102
FCXDDBAS28	BAS28	D103
FCXZ000039	Z3.9V	D104
FCXZ000039	Z3.9V	D105
FCLEDSMD20	TLMH3101	D106
FCLEDSMD20	TLMH3101	D107
FCDD041200	Z12	D108
FCDD041200	Z12	D109
FCDD041200	Z12	D110
FCDD041200	Z12	D111
FCDD041200	Z12	D112
FCDD041200	Z12	D113
FCXZ000180	Z18V	D114
FCXZ000180	Z18V	D115
FCDD102700	Z27V/1	D116
FCDD102700	Z27V/1	D117
FCDIDB3000	DB3	D118
FCXZ000082	Z8.2V	D119
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FCXZ000056	Z5.6V	D121
FCXDDBAS16	BAS16	D122
FCXDD40070	1N4007	D123
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FCXDDBAS28	BAS28	D125
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FCXDDBAS16	BAS16	D127
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FCXZ000100	Z10V	D129
FCXDDBAS16	BAS16	D130
FCXDDBAS16	BAS16	D131
FCXDDBAS28	BAS28	D132
FCXZ000075	Z7.5V	D133
FCXDDBAS28	BAS28	D134
FCXZ000039	Z3.9V	D135
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FCLEDSMD20	TLMH3101	D137
FCLEDSMD20	TLMH3101	D138

PARTS LIST: PRINTED CIRCUIT 11.0956.03.01

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FCDD041200	Z12	D143
FCDD041200	Z12	D144
FCXZ000180	Z18V	D145
FCXZ000180	Z18V	D146
FCDD102700	Z27V/1	D147
FCDD102700	Z27V/1	D148
FCDIDB3000	DB3	D149
FCXZ000082	Z8.2V	D150
FCXZ000082	Z8.2V	D151
FCXZ000056	Z5.6V	D152
FCXDD40070	1N4007	D153
FCXZ000120	Z12V	D154
FCXDDBAS28	BAS28	D155
FCXDDBAS16	BAS16	D156
FCXDDBAS16	BAS16	D157
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FCFUS50350	F8A	F103
FCFUS50350	F8A	F104
FCFER43220	Ferrite	FB101
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FCFER43220	Ferrite	FB106
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FCFER43220	Ferrite	FB109
FCFER43220	Ferrite	FB110
FCFER43220	Ferrite	FB111
FCFER43220	Ferrite	FB112
FCMECT0220	Heatsink f/ TO220	HS101
FCMECT0220	Heatsink f/ TO220	HS102
FCMECT0220	Heatsink f/ TO220	HS103
FCMECT0220	Heatsink f/ TO220	HS104
FCMECT0220	Heatsink f/ TO220	HS105
FCMECT0220	Heatsink f/ TO220	HS106
FCMECT0220	Heatsink f/ TO220	HS107
FCRAD13850	Heatsink f/ Power Module	HS108
FCOPTVTL50	VTL 5C8	IC101
FCIC071010	TL071	IC102
FCIC553410	NE5534A	IC103
FCIC431010	LM431AC	IC104
FCIC350000	LM35DZ	IC105
FCIC072010	TL072	IC106
FCREG78050	7805	IC107
FCIC409301	HEF4093B	IC108
FCOPTVTL50	VTL 5C8	IC109
FCIC071010	TL071	IC110
FCIC553410	NE5534A	IC111
FCIC409301	HEF4093B	IC112
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PARTS LIST: PRINTED CIRCUIT 11.0956.03.01

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FCMICTO126	Insulant TO126	IN105
FCMICTO126	Insulant TO126	IN106
FCMICTO126	Insulant TO126	IN107
FCTIRKON00	Insulating polymer	IN108
FCTIRKON00	Insulating polymer	IN109
FCMICTO126	Insulant TO126	IN112
FCCTM00040	B4B-EH-A	J101
FCCTM00030	B3B-EH-A	J102
FCTERM0100	Jumper Pin	J103
FCTERM0100	Jumper Pin	J104
FCTERM0100	Jumper Pin	J105
FCTERM0100	Jumper Pin	J106
FCTERM0100	Jumper Pin	J107
FCTERM0100	Jumper Pin	J108
FCCTM00030	B3B-EH-A	J109
FCCTM00020	B2B-EH-A	J110
FCCTM00040	B4B-EH-A	J111
FCTERM0100	Jumper Pin	J112
FCTERM0100	Jumper Pin	J113
FCTERM0100	Jumper Pin	J114
FCTERM0100	Jumper Pin	J115
FCTERM0100	Jumper Pin	J116
FCTERM0100	Jumper Pin	J117
FCREL00300	TQ2-12V	K101
FCREL00300	TQ2-12V	K102
FCIND00100	1uH	L101
FCIND00100	1uH	L102
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FCMJ000100	Jumper	MJ102
FCMJ000100	Jumper	MJ103
FCMJ000100	Jumper	MJ104
FCMJ000100	Jumper	MJ105
FCMJ000100	Jumper	MJ106
FCPINZAM00	Clamp WD. 00.2636	MP101
FCPINZAM00	Clamp WD. 00.2636	MP102
FCTUE00300	Nut M3	NV101
FCTUE00300	Nut M3	NV102
FCTUE00300	Nut M3	NV103
FCTUE00300	Nut M3	NV104
FCTUE00300	Nut M3	NV105
FCTUE00300	Nut M3	NV106
FCPORF3150	3/15P	PF101
FCPORF3150	3/15P	PF102
FCPORF3150	3/15P	PF103
FCPORF3150	3/15P	PF104
FCTR437000	BD437	Q101
FCTR437000	BD437	Q102
FCTR471000	BF471	Q103
FCTR472000	BF472	Q104
FCTR340000	MJE340	Q105
FCTR350000	MJE350	Q106
FCTR340000	MJE340	Q107
FCTR350000	MJE350	Q108

PARTS LIST: PRINTED CIRCUIT 11.0956.03.01

Code	Description	Reference
FCTR243000	IRFP9240	Q109
FCTR240000	IRFP240	Q110
FCTR243000	IRFP9240	Q111
FCTR240000	IRFP240	Q112
FCXTT08570	BC857B	Q113
FCXTT08470	BC847B	Q114
FCXTT08570	BC857B	Q115
FCXTT08470	BC847B	Q116
FCTR240000	IRFP240	Q117
FCTR243000	IRFP9240	Q118
FCXTT08570	BC857B	Q119
FCXTT08470	BC847B	Q120
FCTI246000	BTB24600B	Q121
FCXTT08570	BC857B	Q122
FCXTT08470	BC847B	Q123
FCTR254010	2N5401	Q124
FCXTT08470	BC847B	Q125
FCXTT08170	BC817/25	Q126
FCTR437000	BD437	Q127
FCTR437000	BD437	Q128
FCTR471000	BF471	Q129
FCTR472000	BF472	Q130
FCTR340000	MJE340	Q131
FCTR350000	MJE350	Q132
FCTR340000	MJE340	Q133
FCTR350000	MJE350	Q134
FCTR243000	IRFP9240	Q135
FCTR240000	IRFP240	Q136
FCTR243000	IRFP9240	Q137
FCTR240000	IRFP240	Q138
FCXTT08570	BC857B	Q139
FCXTT08470	BC847B	Q140
FCXTT08570	BC857B	Q141
FCXTT08470	BC847B	Q142
FCTR240000	IRFP240	Q143
FCTR243000	IRFP9240	Q144
FCXTT08570	BC857B	Q145
FCXTT08470	BC847B	Q146
FCTI246000	BTB24600B	Q147
FCXTT08570	BC857B	Q148
FCXTT08470	BC847B	Q149
FCTR254010	2N5401	Q150
FCXTT08470	BC847B	Q151
FCXTT08170	BC817/25	Q152
FCXR561000	1M	R101
FCXR542150	21k5	R102
FCXR542150	21k5	R103
FCXR542150	21k5	R104
FCXR551000	100k0	R105
FCXR531000	1k0	R106
FCXR531000	1k0	R107
FCXR543480	34k8	R108
FCXR543480	34k8	R109
FCXR531960	1k96	R110
FCXR535620	5k62	R111
FCXR571000	10M	R112

PARTS LIST: PRINTED CIRCUIT 11.0956.03.01

Code	Description	Reference
FCXR531210	1k21	R113
FCXR531210	1k21	R114
FCXR525110	511	R115
FCXR521780	178	R116
FCXR525110	511	R117
FCXR521780	178	R118
FCXR515620	56.2	R119
FCXR531470	1k47	R120
FCXR531470	1k47	R121
FCXR515620	56.2	R122
FCXR526810	681	R123
FCXR531470	1k47	R124
FCRJG44700	4k7	R125
FCXR526810	681	R126
FCXR511000	10.0	R127
FCXR515620	56.2	R128
FCXR523160	316	R129
FCXR515620	56.2	R130
FCXR511000	10.0	R131
FCXR523160	316	R132
FCRF426800	NF68/1	R133
FCRF426800	NF68/1	R134
FCRF232200	NF220/ 1/2	R135
FCRF232200	NF220/ 1/2	R136
FCRF232200	NF220/ 1/2	R137
FCRF232200	NF220/ 1/2	R138
FCRY000100	W0.22/5	R139
FCRY000100	W0.22/5	R140
FCRY000100	W0.22/5	R141
FCRY000100	W0.22/5	R142
FCXR542610	26k1	R143
FCXR542370	23k7	R144
FCRF232200	NF220/ 1/2	R145
FCRF232200	NF220/ 1/2	R146
FCXR525620	562	R147
FCXR525620	562	R148
FCXR524640	464	R149
FCXR524640	464	R150
FCXR543480	34k8	R151
FCXR543480	34k8	R152
FCRY000100	W0.22/5	R153
FCRY000100	W0.22/5	R154
FCXR536810	6k81	R155
FCXR543480	34k8	R156
FCXR543480	34k8	R157
FCXR536810	6k81	R158
FCXR543480	34k8	R159
FCXR543480	34k8	R160
FCXR544640	46k4	R161
FCXR521000	100.0	R162
FCXR521000	100.0	R163
FCXR541330	13k3	R164
FCXR541330	13k3	R165
FCXR521000	100.0	R166
FCXR531000	1k0	R167
FCRY000250	6.8/5W	R168

PARTS LIST: PRINTED CIRCUIT 11.0956.03.01

Code	Description	Reference
FCXR531000	1k0	R169
FCXR521000	100.0	R170
FCRC521000	10/2	R171
FCRC512200	2.2/2	R172
FCXR534220	4k22	R173
FCXR534220	4k22	R174
FCXR534220	4k22	R175
FCXR534220	4k22	R176
FCXR544640	46k4	R177
FCXR544640	46k4	R178
FCXR544640	46k4	R179
FCXR532150	2k15	R180
FCXR541000	10k0	R181
FCXR531620	1k62	R182
FCXR524640	464	R183
FCXR544640	46k4	R184
FCXR541000	10k0	R185
FCXR551000	100k0	R186
FCXR542150	21k5	R187
FCXR551000	100k0	R188
FCXR531000	1k0	R189
FCXR544640	46k4	R190
FCXR535620	5k62	R191
FCXR562200	2M2	R192
FCXR551000	100k0	R193
FCXR542150	21k5	R194
FCXR552870	287k	R195
FCXR541000	10k0	R196
FCXR551000	100k0	R197
FCXR528250	825	R198
FCXR531470	1k47	R199
FCXR515620	56.2	R200
FCXR528250	825	R201
FCXR515620	56.2	R202
FCXR521780	178	R203
FCXR531000	1k0	R204
FCXR561000	1M	R205
FCXR542150	21k5	R206
FCXR542150	21k5	R207
FCXR542150	21k5	R208
FCXR551000	100k0	R209
FCXR531000	1k0	R210
FCXR531000	1k0	R211
FCXR543480	34k8	R212
FCXR543480	34k8	R213
FCXR571000	10M	R214
FCXR531960	1k96	R215
FCXR535620	5k62	R216
FCXR531210	1k21	R217
FCXR531210	1k21	R218
FCXR525110	511	R219
FCXR521780	178	R220
FCXR525110	511	R221
FCXR521780	178	R222
FCXR515620	56.2	R223
FCXR531470	1k47	R224

PARTS LIST: PRINTED CIRCUIT 11.0956.03.01

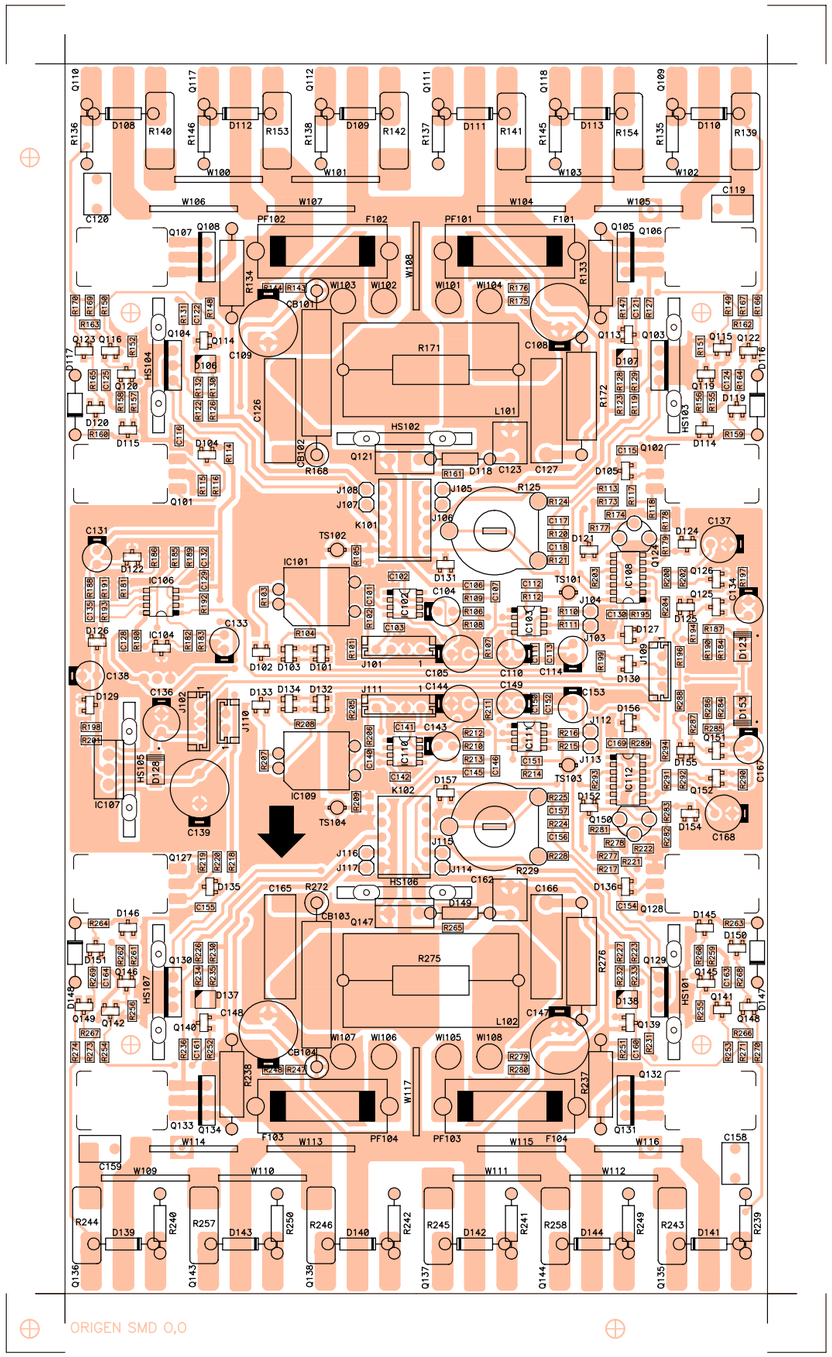
Code	Description	Reference
FCXR531470	1k47	R225
FCXR515620	56.2	R226
FCXR526810	681	R227
FCXR531470	1k47	R228
FCRJG44700	4k7	R229
FCXR526810	681	R230
FCXR511000	10.0	R231
FCXR515620	56.2	R232
FCXR523160	316	R233
FCXR523160	316	R234
FCXR515620	56.2	R235
FCXR511000	10.0	R236
FCRF426800	NF68/1	R237
FCRF426800	NF68/1	R238
FCRF232200	NF220/ 1/2	R239
FCRF232200	NF220/ 1/2	R240
FCRF232200	NF220/ 1/2	R241
FCRF232200	NF220/ 1/2	R242
FCRY000100	W0.22/5	R243
FCRY000100	W0.22/5	R244
FCRY000100	W0.22/5	R245
FCRY000100	W0.22/5	R246
FCXR542610	26k1	R247
FCXR542370	23k7	R248
FCRF232200	NF220/ 1/2	R249
FCRF232200	NF220/ 1/2	R250
FCXR525620	562	R251
FCXR525620	562	R252
FCXR524640	464	R253
FCXR524640	464	R254
FCXR543480	34k8	R255
FCXR543480	34k8	R256
FCRY000100	W0.22/5	R257
FCRY000100	W0.22/5	R258
FCXR536810	6k81	R259
FCXR543480	34k8	R260
FCXR543480	34k8	R261
FCXR536810	6k81	R262
FCXR543480	34k8	R263
FCXR543480	34k8	R264
FCXR544640	46k4	R265
FCXR521000	100.0	R266
FCXR521000	100.0	R267
FCXR541330	13k3	R268
FCXR541330	13k3	R269
FCXR521000	100.0	R270
FCXR531000	1k0	R271
FCRY000250	6.8/5W	R272
FCXR531000	1k0	R273
FCXR521000	100.0	R274
FCRC521000	10/2	R275
FCRC512200	2.2/2	R276
FCXR534220	4k22	R277
FCXR534220	4k22	R278
FCXR534220	4k22	R279
FCXR534220	4k22	R280

PARTS LIST: PRINTED CIRCUIT 11.0956.03.01

Code	Description	Reference
FCXR544640	46k4	R281
FCXR544640	46k4	R282
FCXR544640	46k4	R283
FCXR544640	46k4	R284
FCXR542150	21k5	R285
FCXR544640	46k4	R286
FCXR542150	21k5	R287
FCXR541000	10k0	R288
FCXR552870	287k	R289
FCXR551000	100k0	R290
FCXR515620	56.2	R291
FCXR515620	56.2	R292
FCXR521780	178	R293
FCXR531000	1k0	R294
FCT8040060	Screw M4x6 SPAN	SC101
FCT7503008	Screw M3x8	SC102
FCT7503008	Screw M3x8	SC103
FCT7503008	Screw M3x8	SC104
FCT7503008	Screw M3x8	SC105
FCT7503008	Screw M3x8	SC106
FCT7503008	Screw M3x8	SC107
FCSEPPM000	Plastic Spacer f/board ct.	SC108
FCSEPPM000	Plastic Spacer f/board ct.	SC109
FCT8040060	Screw M4x6 SPAN	SC110
FCT8040060	Screw M4x6 SPAN	SC111
FCT8030100	Screw M3x10 SPA	SC112
FCT8030100	Screw M3x10 SPA	SC113
FCT8030100	Screw M3x10 SPA	SC114
FCT8030100	Screw M3x10 SPA	SC115
FCT8030100	Screw M3x10 SPA	SC116
FCT8030100	Screw M3x10 SPA	SC117
FCT8030100	Screw M3x10 SPA	SC118
FCT8030100	Screw M3x10 SPA	SC119
FCT8030100	Screw M3x10 SPA	SC120
FCT8030100	Screw M3x10 SPA	SC121
FCSEPPM000	Plastic Spacer f/board ct.	SC122
FCSEPPM000	Plastic Spacer f/board ct.	SC123
FCT8030100	Screw M3x10 SPA	SC124
FCT8030100	Screw M3x10 SPA	SC125
FCT8040060	Screw M4x6 SPAN	SC126
FCTERMF280	Faston 2.8mm	TS101
FCTERMF280	Faston 2.8mm	TS102
FCTERMF280	Faston 2.8mm	TS103
FCTERMF280	Faston 2.8mm	TS104
FCMECPON19	19mm	W100
FCMECPON19	19mm	W101
FCMECPON19	19mm	W102
FCMECPON19	19mm	W103
FCMECPON19	19mm	W104
FCMECPON19	19mm	W105
FCMECPON19	19mm	W106
FCMECPON19	19mm	W107
FCMECPON19	19mm	W108
FCMECPON19	19mm	W109
FCMECPON19	19mm	W110
FCMECPON19	19mm	W111

PARTS LIST: PRINTED CIRCUIT 11.0956.03.01

Code	Description	Reference
FCMECPON19	19mm	W112
FCMECPON19	19mm	W113
FCMECPON19	19mm	W114
FCMECPON19	19mm	W115
FCMECPON19	19mm	W116
FCMECPON19	19mm	W117
FCARM32010	Metal Washer 3.2x6x1	WA101
FCARM32010	Metal Washer 3.2x6x1	WA102
FCARDE0300	Toothed Washer M3	WA103
FCARM32010	Metal Washer 3.2x6x1	WA104
FCARM32010	Metal Washer 3.2x6x1	WA105
FCARM32010	Metal Washer 3.2x6x1	WA106
FCARM32010	Metal Washer 3.2x6x1	WA107
FCARM32010	Metal Washer 3.2x6x1	WA108
FCARM32010	Metal Washer 3.2x6x1	WA109
FCARDE0300	Toothed Washer M3	WA114
FCARDE0300	Toothed Washer M3	WA115
FCARDE0300	Toothed Washer M3	WA116
FCARDE0300	Toothed Washer M3	WA117
FCARDE0300	Toothed Washer M3	WA118
FC0H111500	1111.05.00	WI107
FC0H110500	1110.05.00	WI108



OLD VERSION

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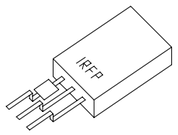
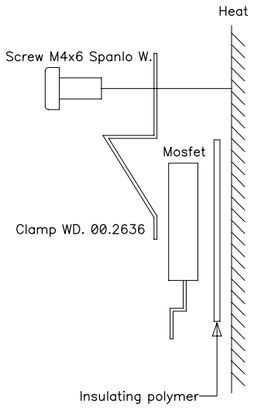
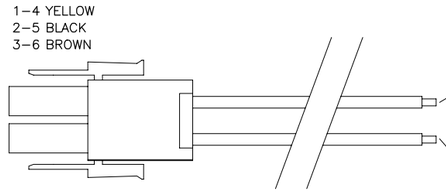
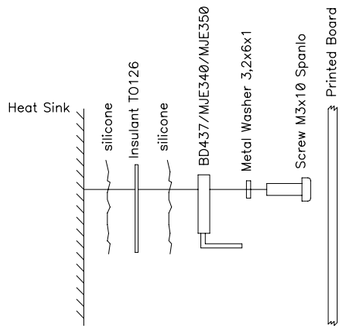
number: 33.0806	version: 01.02	project n: EP14-02	title: Power Amp. Ct.
drawn by: M. Amoros	date: 020718	product n: MPA 4-400	
		approved: Angel Sanuy	

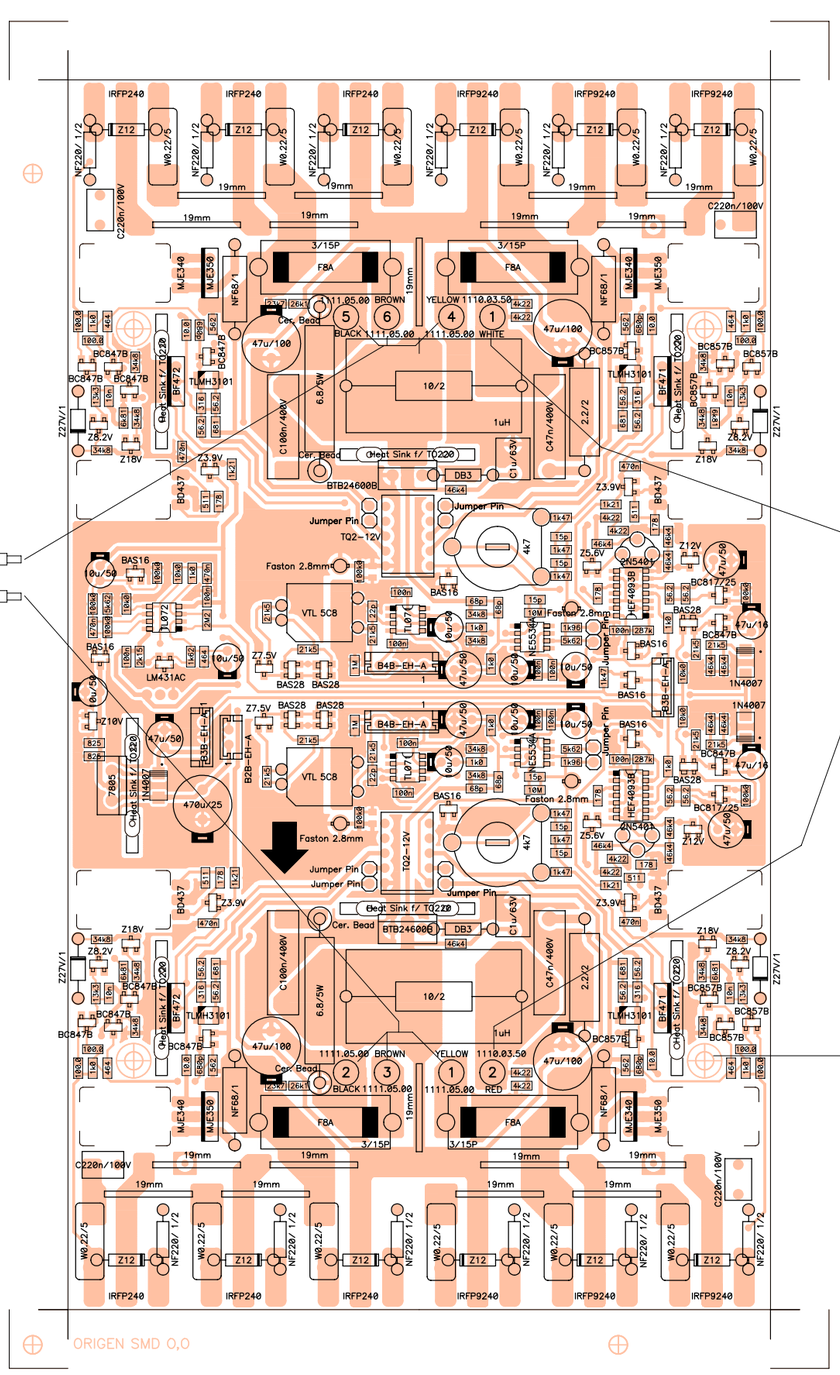
Detail of the ferrite position

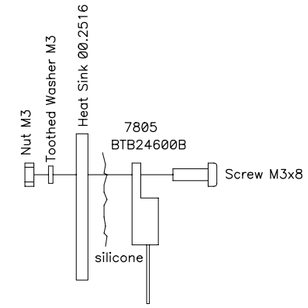


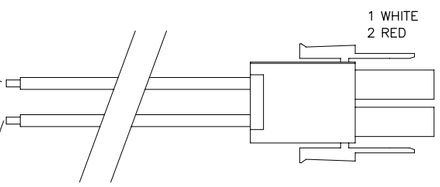


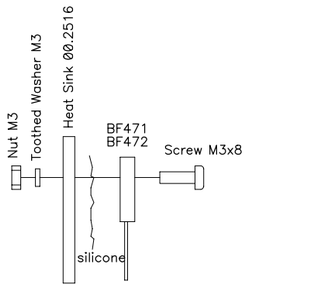


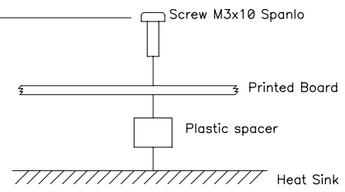












ORIGEN SMD 0,0

OLD VERSION

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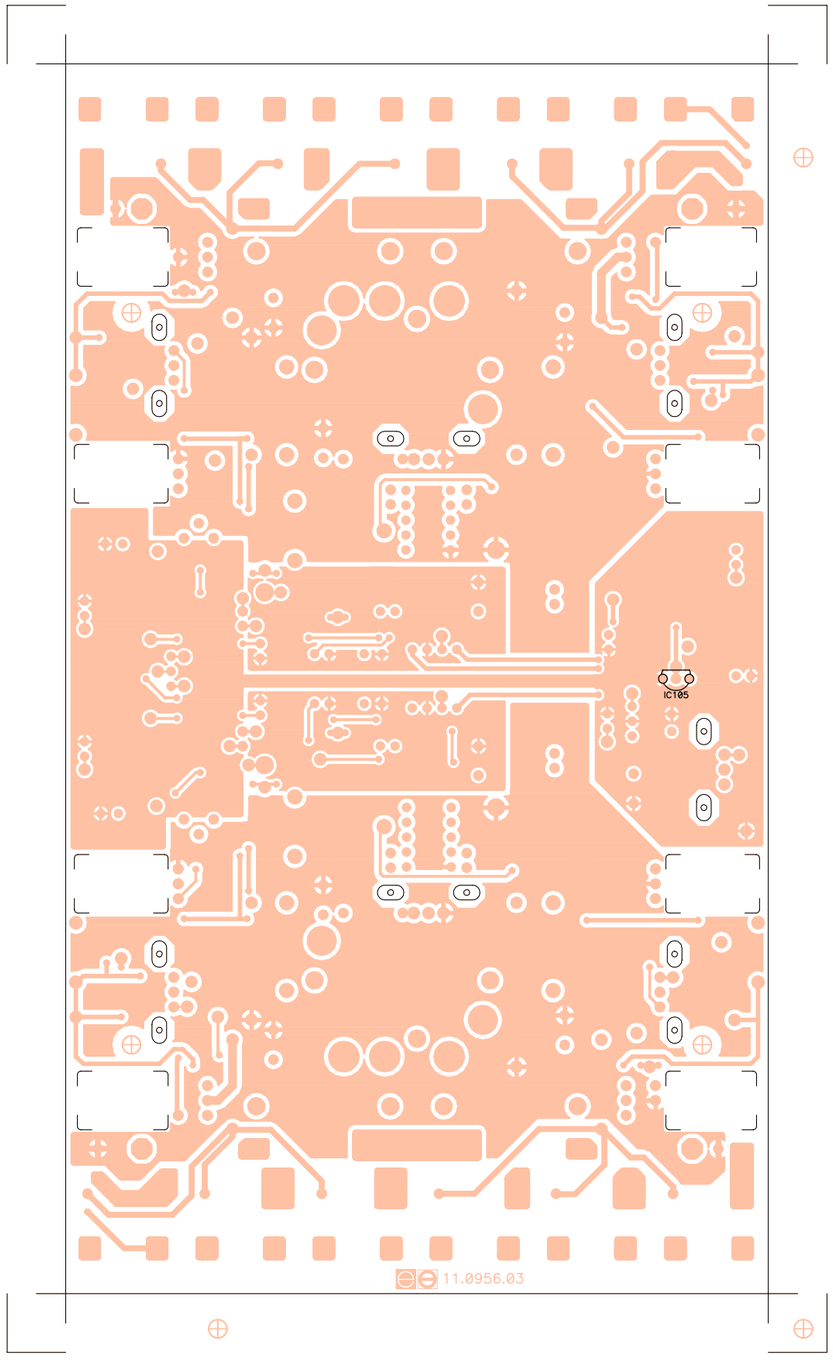
number: 33.0807	version: 01.03	project n: EP14–02	title: Power Amp. Ct.
drawn by: M. Amoros	date: 020718	product n: MPA 4–400 approved: Angel Sanuy	



OLD VERSION

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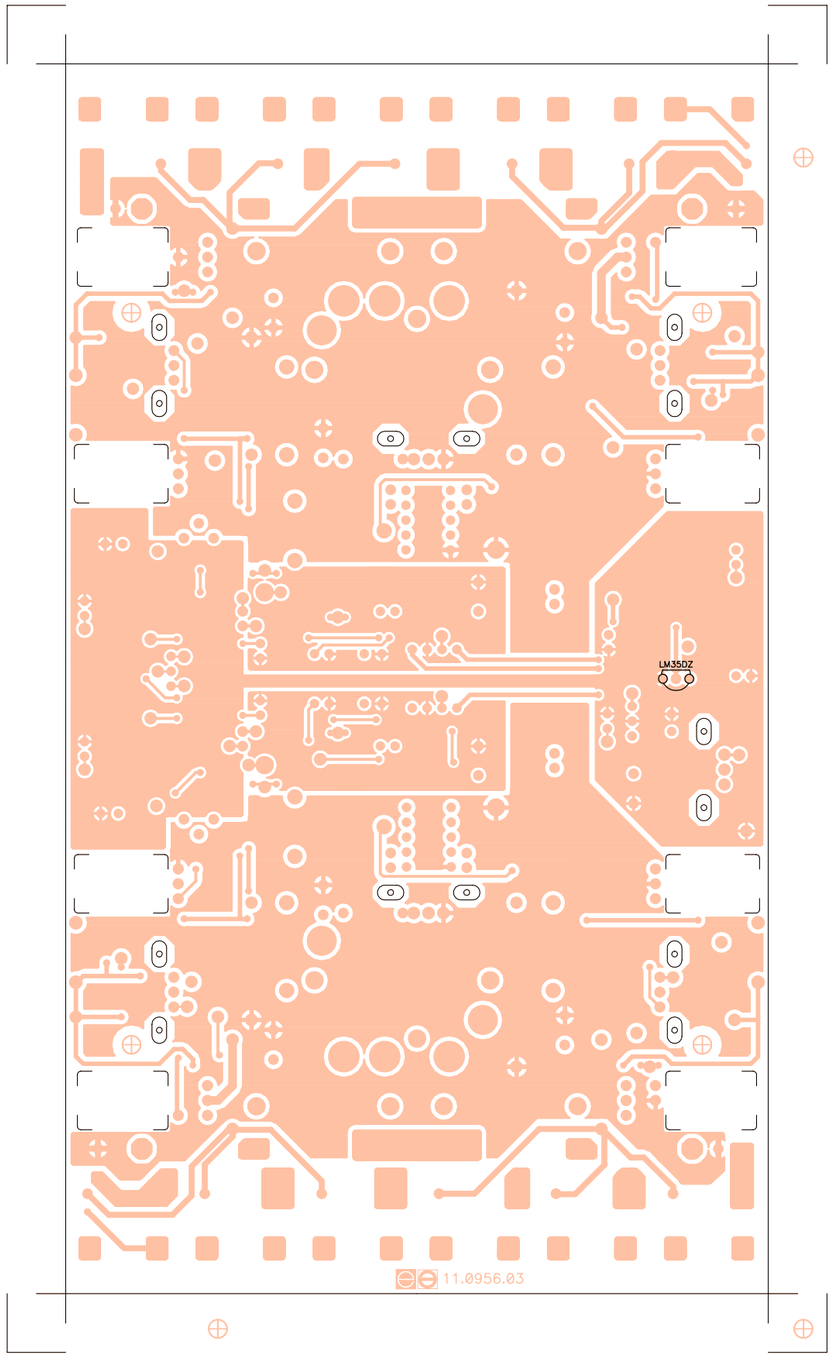
number: 33.0808	version: 01.02	project n: EP14–02	title: Power Amp. Ct.
drawn by: M. Amoros	date: 020718	product n: MPA 4–400	
		approved: Angel Sanuy	



OLD VERSION

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number: 33.0809	version: 01.02	project n: EP14-02	title: Power Amp. Ct.
drawn by: M. Amoros	date: 020718	product n: MPA 4-400	
		approved: Angel Sanuy	

PARTS LIST: PRINTED CIRCUIT 11.0956.03.00

OLD VERSION

Code	Description	Reference
FCXCD12200	22p	C101
FCXCD41000	100n	C102
FCXCD41000	100n	C103
FCCE250100	10u/50	C104
FCCE250470	47u/50	C105
FCXCD16800	68p	C106
FCXCD16800	68p	C107
FCCE350470	47u/100	C108
FCCE350470	47u/100	C109
FCCE250100	10u/50	C110
FCXCD41000	100n	C111
FCXCD11500	15p	C112
FCXCD41000	100n	C113
FCCE250100	10u/50	C114
FCXCD44700	470n	C115
FCXCD44700	470n	C116
FCXCD11500	15p	C117
FCXCD11500	15p	C118
FCCDK52200	C220n/100V	C119
FCCDK52200	C220n/100V	C120
FCXCD26800	680p	C121
FCXCD26800	680p	C122
FCCDK20010	C1u/63V	C123
FCXCD40100	10n	C124
FCXCD40100	10n	C125
FCCDH71100	C100n/400V	C126
FCCDH71047	C47n/400V	C127
FCXCD41000	100n	C128
FCXCD41000	100n	C129
FCXCD41000	100n	C130
FCCE250100	10u/50	C131
FCXCD44700	470n	C132
FCCE250100	10u/50	C133
FCCE100000	47u/16	C134
FCXCD44700	470n	C135
FCCE250470	47u/50	C136
FCCE250470	47u/50	C137
FCCE250100	10u/50	C138
FCCE154700	470u/25	C139
FCXCD12200	22p	C140
FCXCD41000	100n	C141
FCXCD41000	100n	C142
FCCE250100	10u/50	C143
FCCE250470	47u/50	C144
FCXCD16800	68p	C145
FCXCD16800	68p	C146
FCCE350470	47u/100	C147
FCCE350470	47u/100	C148
FCCE250100	10u/50	C149
FCXCD41000	100n	C150
FCXCD11500	15p	C151
FCXCD41000	100n	C152
FCCE250100	10u/50	C153
FCXCD44700	470n	C154
FCXCD44700	470n	C155
FCXCD11500	15p	C156

PARTS LIST: PRINTED CIRCUIT 11.0956.03.00

OLD VERSION

Code	Description	Reference
FCXCD11500	15p	C157
FCCDK52200	C220n/100V	C158
FCCDK52200	C220n/100V	C159
FCXCD26800	680p	C160
FCXCD26800	680p	C161
FCCDK20010	C1u/63V	C162
FCXCD40100	10n	C163
FCXCD40100	10n	C164
FCCDH71100	C100n/400V	C165
FCCDH71047	C47n/400V	C166
FCCE100000	47u/16	C167
FCCE250470	47u/50	C168
FCXCD41000	100n	C169
FCPERL2550	Cer. Bead	CB101
FCPERL2550	Cer. Bead	CB102
FCPERL2550	Cer. Bead	CB103
FCPERL2550	Cer. Bead	CB104
FCCI009560	Printed Board 11.0956	CI101
FCXDDBAS28	BAS28	D101
FCXZ000075	Z7.5V	D102
FCXDDBAS28	BAS28	D103
FCXZ000039	Z3.9V	D104
FCXZ000039	Z3.9V	D105
FCLEDSMD20	TLMH3101	D106
FCLEDSMD20	TLMH3101	D107
FCDD041200	Z12	D108
FCDD041200	Z12	D109
FCDD041200	Z12	D110
FCDD041200	Z12	D111
FCDD041200	Z12	D112
FCDD041200	Z12	D113
FCXZ000180	Z18V	D114
FCXZ000180	Z18V	D115
FCDD102700	Z27V/1	D116
FCDD102700	Z27V/1	D117
FCDIDB3000	DB3	D118
FCXZ000082	Z8.2V	D119
FCXZ000082	Z8.2V	D120
FCXZ000056	Z5.6V	D121
FCXDDBAS16	BAS16	D122
FCXDD40070	1N4007	D123
FCXZ000120	Z12V	D124
FCXDDBAS28	BAS28	D125
FCXDDBAS16	BAS16	D126
FCXDDBAS16	BAS16	D127
FCXDD40070	1N4007	D128
FCXZ000100	Z10V	D129
FCXDDBAS16	BAS16	D130
FCXDDBAS16	BAS16	D131
FCXDDBAS28	BAS28	D132
FCXZ000075	Z7.5V	D133
FCXDDBAS28	BAS28	D134
FCXZ000039	Z3.9V	D135
FCXZ000039	Z3.9V	D136
FCLEDSMD20	TLMH3101	D137
FCLEDSMD20	TLMH3101	D138

PARTS LIST: PRINTED CIRCUIT 11.0956.03.00

OLD VERSION

Code	Description	Reference
FCDD041200	Z12	D139
FCDD041200	Z12	D140
FCDD041200	Z12	D141
FCDD041200	Z12	D142
FCDD041200	Z12	D143
FCDD041200	Z12	D144
FCXZ000180	Z18V	D145
FCXZ000180	Z18V	D146
FCDD102700	Z27V/1	D147
FCDD102700	Z27V/1	D148
FCDIDB3000	DB3	D149
FCXZ000082	Z8.2V	D150
FCXZ000082	Z8.2V	D151
FCXZ000056	Z5.6V	D152
FCXDD40070	1N4007	D153
FCXZ000120	Z12V	D154
FCXDDBAS28	BAS28	D155
FCXDDBAS16	BAS16	D156
FCXDDBAS16	BAS16	D157
FCFUS50350	F8A	F101
FCFUS50350	F8A	F102
FCFUS50350	F8A	F103
FCFUS50350	F8A	F104
FCFER43220	Ferrite	FB101
FCFER43220	Ferrite	FB102
FCFER43220	Ferrite	FB103
FCFER43220	Ferrite	FB104
FCFER43220	Ferrite	FB105
FCFER43220	Ferrite	FB106
FCFER43220	Ferrite	FB107
FCFER43220	Ferrite	FB108
FCFER43220	Ferrite	FB109
FCFER43220	Ferrite	FB110
FCFER43220	Ferrite	FB111
FCFER43220	Ferrite	FB112
FCMECT0220	Heatsink f/ TO220	HS101
FCMECT0220	Heatsink f/ TO220	HS102
FCMECT0220	Heatsink f/ TO220	HS103
FCMECT0220	Heatsink f/ TO220	HS104
FCMECT0220	Heatsink f/ TO220	HS105
FCMECT0220	Heatsink f/ TO220	HS106
FCMECT0220	Heatsink f/ TO220	HS107
FCRAD13850	Heatsink f/ Power Module	HS108
FCOPTVTL50	VTL 5C8	IC101
FCIC071010	TL071	IC102
FCIC553410	NE5534A	IC103
FCIC431010	LM431AC	IC104
FCIC350000	LM35DZ	IC105
FCIC072010	TL072	IC106
FCREG78050	7805	IC107
FCIC409301	HEF4093B	IC108
FCOPTVTL50	VTL 5C8	IC109
FCIC071010	TL071	IC110
FCIC553410	NE5534A	IC111
FCIC409301	HEF4093B	IC112
FCMICTO126	Insulant TO126	IN101

PARTS LIST: PRINTED CIRCUIT 11.0956.03.00

OLD VERSION

Code	Description	Reference
FCMICTO126	Insulant TO126	IN102
FCMICTO126	Insulant TO126	IN103
FCMICTO126	Insulant TO126	IN104
FCMICTO126	Insulant TO126	IN105
FCMICTO126	Insulant TO126	IN106
FCMICTO126	Insulant TO126	IN107
FCTIRKON00	Insulating polymer	IN108
FCTIRKON00	Insulating polymer	IN109
FCMICTO126	Insulant TO126	IN112
FCCTM00040	B4B-EH-A	J101
FCCTM00030	B3B-EH-A	J102
FCTERM0100	Jumper Pin	J103
FCTERM0100	Jumper Pin	J104
FCTERM0100	Jumper Pin	J105
FCTERM0100	Jumper Pin	J106
FCTERM0100	Jumper Pin	J107
FCTERM0100	Jumper Pin	J108
FCCTM00030	B3B-EH-A	J109
FCCTM00020	B2B-EH-A	J110
FCCTM00040	B4B-EH-A	J111
FCTERM0100	Jumper Pin	J112
FCTERM0100	Jumper Pin	J113
FCTERM0100	Jumper Pin	J114
FCTERM0100	Jumper Pin	J115
FCTERM0100	Jumper Pin	J116
FCTERM0100	Jumper Pin	J117
FCREL00300	TQ2-12V	K101
FCREL00300	TQ2-12V	K102
FCIND00100	1uH	L101
FCIND00100	1uH	L102
FCMJ000100	Jumper	MJ101
FCMJ000100	Jumper	MJ102
FCMJ000100	Jumper	MJ103
FCMJ000100	Jumper	MJ104
FCMJ000100	Jumper	MJ105
FCMJ000100	Jumper	MJ106
FCPINZAM00	Clamp WD. 00.2636	MP101
FCPINZAM00	Clamp WD. 00.2636	MP102
FCTUE00300	Nut M3	NV101
FCTUE00300	Nut M3	NV102
FCTUE00300	Nut M3	NV103
FCTUE00300	Nut M3	NV104
FCTUE00300	Nut M3	NV105
FCTUE00300	Nut M3	NV106
FCPORF3150	3/15P	PF101
FCPORF3150	3/15P	PF102
FCPORF3150	3/15P	PF103
FCPORF3150	3/15P	PF104
FCTR437000	BD437	Q101
FCTR437000	BD437	Q102
FCTR471000	BF471	Q103
FCTR472000	BF472	Q104
FCTR340000	MJE340	Q105
FCTR350000	MJE350	Q106
FCTR340000	MJE340	Q107
FCTR350000	MJE350	Q108

PARTS LIST: PRINTED CIRCUIT 11.0956.03.00

OLD VERSION

Code	Description	Reference
FCTR243000	IRFP9240	Q109
FCTR240000	IRFP240	Q110
FCTR243000	IRFP9240	Q111
FCTR240000	IRFP240	Q112
FCXTT08570	BC857B	Q113
FCXTT08470	BC847B	Q114
FCXTT08570	BC857B	Q115
FCXTT08470	BC847B	Q116
FCTR240000	IRFP240	Q117
FCTR243000	IRFP9240	Q118
FCXTT08570	BC857B	Q119
FCXTT08470	BC847B	Q120
FCTI246000	BTB24600B	Q121
FCXTT08570	BC857B	Q122
FCXTT08470	BC847B	Q123
FCTR254010	2N5401	Q124
FCXTT08470	BC847B	Q125
FCXTT08170	BC817/25	Q126
FCTR437000	BD437	Q127
FCTR437000	BD437	Q128
FCTR471000	BF471	Q129
FCTR472000	BF472	Q130
FCTR340000	MJE340	Q131
FCTR350000	MJE350	Q132
FCTR340000	MJE340	Q133
FCTR350000	MJE350	Q134
FCTR243000	IRFP9240	Q135
FCTR240000	IRFP240	Q136
FCTR243000	IRFP9240	Q137
FCTR240000	IRFP240	Q138
FCXTT08570	BC857B	Q139
FCXTT08470	BC847B	Q140
FCXTT08570	BC857B	Q141
FCXTT08470	BC847B	Q142
FCTR240000	IRFP240	Q143
FCTR243000	IRFP9240	Q144
FCXTT08570	BC857B	Q145
FCXTT08470	BC847B	Q146
FCTI246000	BTB24600B	Q147
FCXTT08570	BC857B	Q148
FCXTT08470	BC847B	Q149
FCTR254010	2N5401	Q150
FCXTT08470	BC847B	Q151
FCXTT08170	BC817/25	Q152
FCXR561000	1M	R101
FCXR542150	21k5	R102
FCXR542150	21k5	R103
FCXR542150	21k5	R104
FCXR551000	100k0	R105
FCXR531000	1k0	R106
FCXR531000	1k0	R107
FCXR543480	34k8	R108
FCXR543480	34k8	R109
FCXR531960	1k96	R110
FCXR535620	5k62	R111
FCXR571000	10M	R112

PARTS LIST: PRINTED CIRCUIT 11.0956.03.00

Code	Description	Reference
FCXR531210	1k21	R113
FCXR531210	1k21	R114
FCXR525110	511	R115
FCXR521780	178	R116
FCXR525110	511	R117
FCXR521780	178	R118
FCXR515620	56.2	R119
FCXR531470	1k47	R120
FCXR531470	1k47	R121
FCXR515620	56.2	R122
FCXR526810	681	R123
FCXR531470	1k47	R124
FCRJG44700	4k7	R125
FCXR526810	681	R126
FCXR511000	10.0	R127
FCXR515620	56.2	R128
FCXR523160	316	R129
FCXR515620	56.2	R130
FCXR511000	10.0	R131
FCXR523160	316	R132
FCRF426800	NF68/1	R133
FCRF426800	NF68/1	R134
FCRF232200	NF220/ 1/2	R135
FCRF232200	NF220/ 1/2	R136
FCRF232200	NF220/ 1/2	R137
FCRF232200	NF220/ 1/2	R138
FCRY000100	W0.22/5	R139
FCRY000100	W0.22/5	R140
FCRY000100	W0.22/5	R141
FCRY000100	W0.22/5	R142
FCXR542610	26k1	R143
FCXR542370	23k7	R144
FCRF232200	NF220/ 1/2	R145
FCRF232200	NF220/ 1/2	R146
FCXR525620	562	R147
FCXR525620	562	R148
FCXR524640	464	R149
FCXR524640	464	R150
FCXR543480	34k8	R151
FCXR543480	34k8	R152
FCRY000100	W0.22/5	R153
FCRY000100	W0.22/5	R154
FCXR536810	6k81	R155
FCXR543480	34k8	R156
FCXR543480	34k8	R157
FCXR536810	6k81	R158
FCXR543480	34k8	R159
FCXR543480	34k8	R160
FCXR544640	46k4	R161
FCXR521000	100.0	R162
FCXR521000	100.0	R163
FCXR541330	13k3	R164
FCXR541330	13k3	R165
FCXR521000	100.0	R166
FCXR531000	1k0	R167
FCRY000250	6.8/5W	R168

OLD VERSION

PARTS LIST: PRINTED CIRCUIT 11.0956.03.00

OLD VERSION

Code	Description	Reference
FCXR531000	1k0	R169
FCXR521000	100.0	R170
FCRC521000	10/2	R171
FCRC512200	2.2/2	R172
FCXR534220	4k22	R173
FCXR534220	4k22	R174
FCXR534220	4k22	R175
FCXR534220	4k22	R176
FCXR544640	46k4	R177
FCXR544640	46k4	R178
FCXR544640	46k4	R179
FCXR532150	2k15	R180
FCXR541000	10k0	R181
FCXR531620	1k62	R182
FCXR524640	464	R183
FCXR544640	46k4	R184
FCXR541000	10k0	R185
FCXR551000	100k0	R186
FCXR542150	21k5	R187
FCXR551000	100k0	R188
FCXR531000	1k0	R189
FCXR544640	46k4	R190
FCXR535620	5k62	R191
FCXR562200	2M2	R192
FCXR551000	100k0	R193
FCXR542150	21k5	R194
FCXR552870	287k	R195
FCXR541000	10k0	R196
FCXR551000	100k0	R197
FCXR528250	825	R198
FCXR531470	1k47	R199
FCXR515620	56.2	R200
FCXR528250	825	R201
FCXR515620	56.2	R202
FCXR521780	178	R203
FCXR531000	1k0	R204
FCXR561000	1M	R205
FCXR542150	21k5	R206
FCXR542150	21k5	R207
FCXR542150	21k5	R208
FCXR551000	100k0	R209
FCXR531000	1k0	R210
FCXR531000	1k0	R211
FCXR543480	34k8	R212
FCXR543480	34k8	R213
FCXR571000	10M	R214
FCXR531960	1k96	R215
FCXR535620	5k62	R216
FCXR531210	1k21	R217
FCXR531210	1k21	R218
FCXR525110	511	R219
FCXR521780	178	R220
FCXR525110	511	R221
FCXR521780	178	R222
FCXR515620	56.2	R223
FCXR531470	1k47	R224

PARTS LIST: PRINTED CIRCUIT 11.0956.03.00

OLD VERSION

Code	Description	Reference
FCXR531470	1k47	R225
FCXR515620	56.2	R226
FCXR526810	681	R227
FCXR531470	1k47	R228
FCRJG44700	4k7	R229
FCXR526810	681	R230
FCXR511000	10.0	R231
FCXR515620	56.2	R232
FCXR523160	316	R233
FCXR523160	316	R234
FCXR515620	56.2	R235
FCXR511000	10.0	R236
FCRF426800	NF68/1	R237
FCRF426800	NF68/1	R238
FCRF232200	NF220/ 1/2	R239
FCRF232200	NF220/ 1/2	R240
FCRF232200	NF220/ 1/2	R241
FCRF232200	NF220/ 1/2	R242
FCRY000100	W0.22/5	R243
FCRY000100	W0.22/5	R244
FCRY000100	W0.22/5	R245
FCRY000100	W0.22/5	R246
FCXR542610	26k1	R247
FCXR542370	23k7	R248
FCRF232200	NF220/ 1/2	R249
FCRF232200	NF220/ 1/2	R250
FCXR525620	562	R251
FCXR525620	562	R252
FCXR524640	464	R253
FCXR524640	464	R254
FCXR543480	34k8	R255
FCXR543480	34k8	R256
FCRY000100	W0.22/5	R257
FCRY000100	W0.22/5	R258
FCXR536810	6k81	R259
FCXR543480	34k8	R260
FCXR543480	34k8	R261
FCXR536810	6k81	R262
FCXR543480	34k8	R263
FCXR543480	34k8	R264
FCXR544640	46k4	R265
FCXR521000	100.0	R266
FCXR521000	100.0	R267
FCXR541330	13k3	R268
FCXR541330	13k3	R269
FCXR521000	100.0	R270
FCXR531000	1k0	R271
FCRY000250	6.8/5W	R272
FCXR531000	1k0	R273
FCXR521000	100.0	R274
FCRC521000	10/2	R275
FCRC512200	2.2/2	R276
FCXR534220	4k22	R277
FCXR534220	4k22	R278
FCXR534220	4k22	R279
FCXR534220	4k22	R280

PARTS LIST: PRINTED CIRCUIT 11.0956.03.00

OLD VERSION

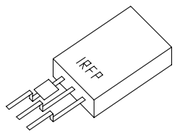
Code	Description	Reference
FCXR544640	46k4	R281
FCXR544640	46k4	R282
FCXR544640	46k4	R283
FCXR544640	46k4	R284
FCXR542150	21k5	R285
FCXR544640	46k4	R286
FCXR542150	21k5	R287
FCXR541000	10k0	R288
FCXR552870	287k	R289
FCXR551000	100k0	R290
FCXR515620	56.2	R291
FCXR515620	56.2	R292
FCXR521780	178	R293
FCXR531000	1k0	R294
FCT8040060	Screw M4x6 SPAN	SC101
FCT7503008	Screw M3x8	SC102
FCT7503008	Screw M3x8	SC103
FCT7503008	Screw M3x8	SC104
FCT7503008	Screw M3x8	SC105
FCT7503008	Screw M3x8	SC106
FCT7503008	Screw M3x8	SC107
FCSEPPM000	Plastic Spacer f/board ct.	SC108
FCSEPPM000	Plastic Spacer f/board ct.	SC109
FCT8040060	Screw M4x6 SPAN	SC110
FCT8040060	Screw M4x6 SPAN	SC111
FCT8030100	Screw M3x10 SPA	SC112
FCT8030100	Screw M3x10 SPA	SC113
FCT8030100	Screw M3x10 SPA	SC114
FCT8030100	Screw M3x10 SPA	SC115
FCT8030100	Screw M3x10 SPA	SC116
FCT8030100	Screw M3x10 SPA	SC117
FCT8030100	Screw M3x10 SPA	SC118
FCT8030100	Screw M3x10 SPA	SC119
FCT8030100	Screw M3x10 SPA	SC120
FCT8030100	Screw M3x10 SPA	SC121
FCSEPPM000	Plastic Spacer f/board ct.	SC122
FCSEPPM000	Plastic Spacer f/board ct.	SC123
FCT8030100	Screw M3x10 SPA	SC124
FCT8030100	Screw M3x10 SPA	SC125
FCT8040060	Screw M4x6 SPAN	SC126
FCTERMF280	Faston 2.8mm	TS101
FCTERMF280	Faston 2.8mm	TS102
FCTERMF280	Faston 2.8mm	TS103
FCTERMF280	Faston 2.8mm	TS104
FCMECPON19	19mm	W100
FCMECPON19	19mm	W101
FCMECPON19	19mm	W102
FCMECPON19	19mm	W103
FCMECPON19	19mm	W104
FCMECPON19	19mm	W105
FCMECPON19	19mm	W106
FCMECPON19	19mm	W107
FCMECPON19	19mm	W108
FCMECPON19	19mm	W109
FCMECPON19	19mm	W110
FCMECPON19	19mm	W111

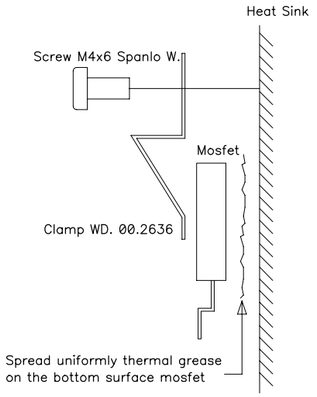
PARTS LIST: PRINTED CIRCUIT 11.0956.03.00

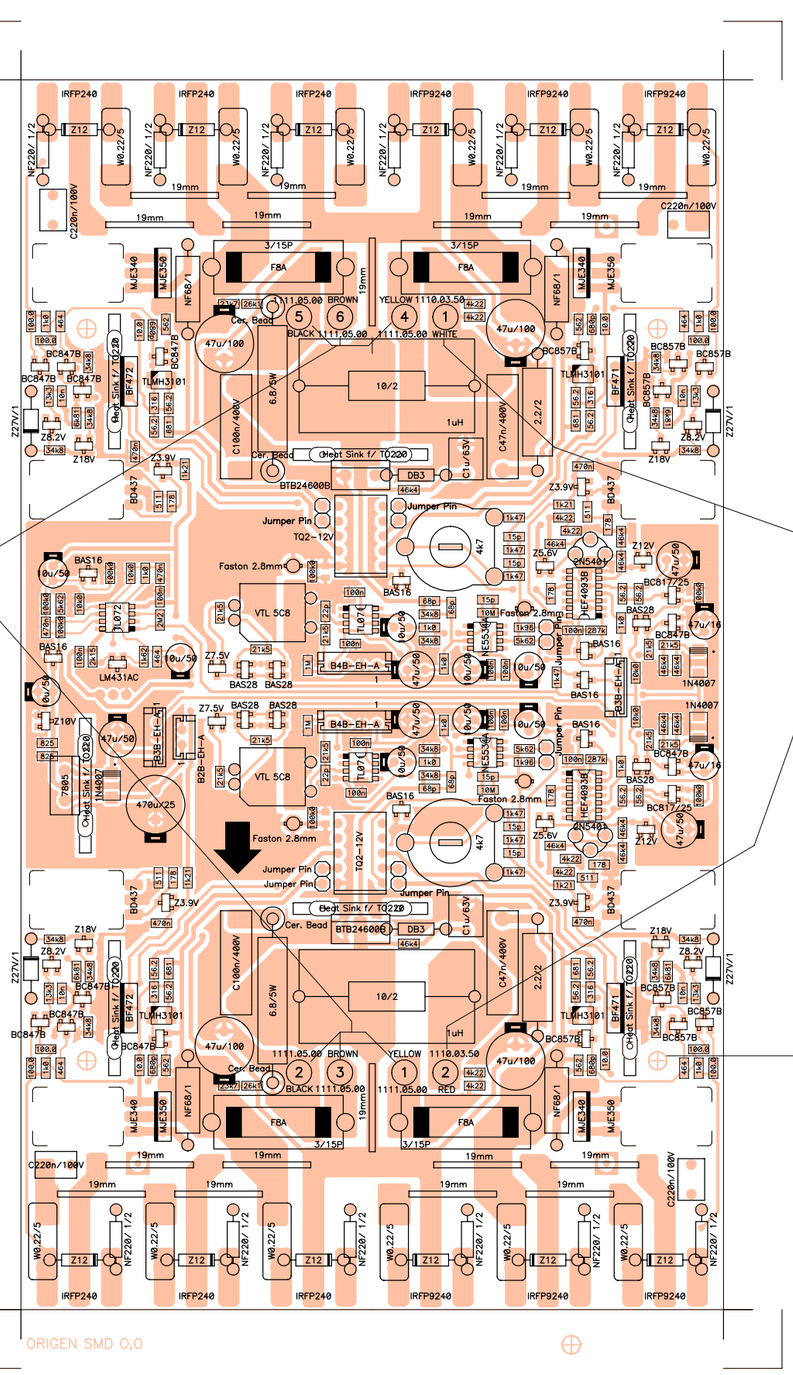
Code	Description	Reference
FCMECPON19	19mm	W112
FCMECPON19	19mm	W113
FCMECPON19	19mm	W114
FCMECPON19	19mm	W115
FCMECPON19	19mm	W116
FCMECPON19	19mm	W117
FCARM32010	Metal Washer 3.2x6x1	WA101
FCARM32010	Metal Washer 3.2x6x1	WA102
FCARDE0300	Toothed Washer M3	WA103
FCARM32010	Metal Washer 3.2x6x1	WA104
FCARM32010	Metal Washer 3.2x6x1	WA105
FCARM32010	Metal Washer 3.2x6x1	WA106
FCARM32010	Metal Washer 3.2x6x1	WA107
FCARM32010	Metal Washer 3.2x6x1	WA108
FCARM32010	Metal Washer 3.2x6x1	WA109
FCARDE0300	Toothed Washer M3	WA114
FCARDE0300	Toothed Washer M3	WA115
FCARDE0300	Toothed Washer M3	WA116
FCARDE0300	Toothed Washer M3	WA117
FCARDE0300	Toothed Washer M3	WA118
FC0H111500	1111.05.00	WI107
FC0H110350	1110.03.50	WI108

OLD VERSION

Detail of the ferrite position







OLD VERSION

ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0956-03.00 schema no: 10.0621-01.01 insertion file no: 81.0075-01.01	side: Component view: Value	
number: 33.0807	version: 01.02	project n: EP14-02	title: Power Amp. Ct.
drawn by: M. Amoros	date: 020718	product n: MPA 4-400	
		approved: Angel Sanuy	

PARTS LIST: PRINTED CIRCUIT 11.0956.03.00

OLD VERSION

Code	Description	Reference
FCXCD12200	22p	C101
FCXCD41000	100n	C102
FCXCD41000	100n	C103
FCCE250100	10u/50	C104
FCCE250470	47u/50	C105
FCXCD16800	68p	C106
FCXCD16800	68p	C107
FCCE350470	47u/100	C108
FCCE350470	47u/100	C109
FCCE250100	10u/50	C110
FCXCD41000	100n	C111
FCXCD11500	15p	C112
FCXCD41000	100n	C113
FCCE250100	10u/50	C114
FCXCD44700	470n	C115
FCXCD44700	470n	C116
FCXCD11500	15p	C117
FCXCD11500	15p	C118
FCCDK52200	C220n/100V	C119
FCCDK52200	C220n/100V	C120
FCXCD26800	680p	C121
FCXCD26800	680p	C122
FCCDK20010	C1u/63V	C123
FCXCD40100	10n	C124
FCXCD40100	10n	C125
FCCDH71100	C100n/400V	C126
FCCDH71047	C47n/400V	C127
FCXCD41000	100n	C128
FCXCD41000	100n	C129
FCXCD41000	100n	C130
FCCE250100	10u/50	C131
FCXCD44700	470n	C132
FCCE250100	10u/50	C133
FCCE100000	47u/16	C134
FCXCD44700	470n	C135
FCCE250470	47u/50	C136
FCCE250470	47u/50	C137
FCCE250100	10u/50	C138
FCCE154700	470u/25	C139
FCXCD12200	22p	C140
FCXCD41000	100n	C141
FCXCD41000	100n	C142
FCCE250100	10u/50	C143
FCCE250470	47u/50	C144
FCXCD16800	68p	C145
FCXCD16800	68p	C146
FCCE350470	47u/100	C147
FCCE350470	47u/100	C148
FCCE250100	10u/50	C149
FCXCD41000	100n	C150
FCXCD11500	15p	C151
FCXCD41000	100n	C152
FCCE250100	10u/50	C153
FCXCD44700	470n	C154
FCXCD44700	470n	C155
FCXCD11500	15p	C156

PARTS LIST: PRINTED CIRCUIT 11.0956.03.00

OLD VERSION

Code	Description	Reference
FCXCD11500	15p	C157
FCCDK52200	C220n/100V	C158
FCCDK52200	C220n/100V	C159
FCXCD26800	680p	C160
FCXCD26800	680p	C161
FCCDK20010	C1u/63V	C162
FCXCD40100	10n	C163
FCXCD40100	10n	C164
FCCDH71100	C100n/400V	C165
FCCDH71047	C47n/400V	C166
FCCE100000	47u/16	C167
FCCE250470	47u/50	C168
FCXCD41000	100n	C169
FCPERL2550	Cer. Bead	CB101
FCPERL2550	Cer. Bead	CB102
FCPERL2550	Cer. Bead	CB103
FCPERL2550	Cer. Bead	CB104
FCCI009560	Printed Board 11.0956	CI101
FCXDDBAS28	BAS28	D101
FCXZ000075	Z7.5V	D102
FCXDDBAS28	BAS28	D103
FCXZ000039	Z3.9V	D104
FCXZ000039	Z3.9V	D105
FCLEDSMD20	TLMH3101	D106
FCLEDSMD20	TLMH3101	D107
FCDD041200	Z12	D108
FCDD041200	Z12	D109
FCDD041200	Z12	D110
FCDD041200	Z12	D111
FCDD041200	Z12	D112
FCDD041200	Z12	D113
FCXZ000180	Z18V	D114
FCXZ000180	Z18V	D115
FCDD102700	Z27V/1	D116
FCDD102700	Z27V/1	D117
FCDIDB3000	DB3	D118
FCXZ000082	Z8.2V	D119
FCXZ000082	Z8.2V	D120
FCXZ000056	Z5.6V	D121
FCXDDBAS16	BAS16	D122
FCXDD40070	1N4007	D123
FCXZ000120	Z12V	D124
FCXDDBAS28	BAS28	D125
FCXDDBAS16	BAS16	D126
FCXDDBAS16	BAS16	D127
FCXDD40070	1N4007	D128
FCXZ000100	Z10V	D129
FCXDDBAS16	BAS16	D130
FCXDDBAS16	BAS16	D131
FCXDDBAS28	BAS28	D132
FCXZ000075	Z7.5V	D133
FCXDDBAS28	BAS28	D134
FCXZ000039	Z3.9V	D135
FCXZ000039	Z3.9V	D136
FCLEDSMD20	TLMH3101	D137
FCLEDSMD20	TLMH3101	D138

PARTS LIST: PRINTED CIRCUIT 11.0956.03.00

OLD VERSION

Code	Description	Reference
FCDD041200	Z12	D139
FCDD041200	Z12	D140
FCDD041200	Z12	D141
FCDD041200	Z12	D142
FCDD041200	Z12	D143
FCDD041200	Z12	D144
FCXZ000180	Z18V	D145
FCXZ000180	Z18V	D146
FCDD102700	Z27V/1	D147
FCDD102700	Z27V/1	D148
FCDIDB3000	DB3	D149
FCXZ000082	Z8.2V	D150
FCXZ000082	Z8.2V	D151
FCXZ000056	Z5.6V	D152
FCXDD40070	1N4007	D153
FCXZ000120	Z12V	D154
FCXDDBAS28	BAS28	D155
FCXDDBAS16	BAS16	D156
FCXDDBAS16	BAS16	D157
FCFUS50350	F8A	F101
FCFUS50350	F8A	F102
FCFUS50350	F8A	F103
FCFUS50350	F8A	F104
FCFER43220	Ferrite	FB101
FCFER43220	Ferrite	FB102
FCFER43220	Ferrite	FB103
FCFER43220	Ferrite	FB104
FCFER43220	Ferrite	FB105
FCFER43220	Ferrite	FB106
FCFER43220	Ferrite	FB107
FCFER43220	Ferrite	FB108
FCFER43220	Ferrite	FB109
FCFER43220	Ferrite	FB110
FCFER43220	Ferrite	FB111
FCFER43220	Ferrite	FB112
FCMECT0220	Heatsink f/ TO220	HS101
FCMECT0220	Heatsink f/ TO220	HS102
FCMECT0220	Heatsink f/ TO220	HS103
FCMECT0220	Heatsink f/ TO220	HS104
FCMECT0220	Heatsink f/ TO220	HS105
FCMECT0220	Heatsink f/ TO220	HS106
FCMECT0220	Heatsink f/ TO220	HS107
FCRAD13850	Heatsink f/ Power Module	HS108
FCOPTVTL50	VTL 5C8	IC101
FCIC071010	TL071	IC102
FCIC553410	NE5534A	IC103
FCIC431010	LM431AC	IC104
FCIC350000	LM35DZ	IC105
FCIC072010	TL072	IC106
FCREG78050	7805	IC107
FCIC409301	HEF4093B	IC108
FCOPTVTL50	VTL 5C8	IC109
FCIC071010	TL071	IC110
FCIC553410	NE5534A	IC111
FCIC409301	HEF4093B	IC112
FCMICTO126	Insulant TO126	IN101

PARTS LIST: PRINTED CIRCUIT 11.0956.03.00

OLD VERSION

Code	Description	Reference
FCMICTO126	Insulant TO126	IN102
FCMICTO126	Insulant TO126	IN103
FCMICTO126	Insulant TO126	IN104
FCMICTO126	Insulant TO126	IN105
FCMICTO126	Insulant TO126	IN106
FCMICTO126	Insulant TO126	IN107
FCTIRKON00	Insulating polymer	IN108
FCTIRKON00	Insulating polymer	IN109
FCMICTO126	Insulant TO126	IN112
FCCTM00040	B4B-EH-A	J101
FCCTM00030	B3B-EH-A	J102
FCTERM0100	Jumper Pin	J103
FCTERM0100	Jumper Pin	J104
FCTERM0100	Jumper Pin	J105
FCTERM0100	Jumper Pin	J106
FCTERM0100	Jumper Pin	J107
FCTERM0100	Jumper Pin	J108
FCCTM00030	B3B-EH-A	J109
FCCTM00020	B2B-EH-A	J110
FCCTM00040	B4B-EH-A	J111
FCTERM0100	Jumper Pin	J112
FCTERM0100	Jumper Pin	J113
FCTERM0100	Jumper Pin	J114
FCTERM0100	Jumper Pin	J115
FCTERM0100	Jumper Pin	J116
FCTERM0100	Jumper Pin	J117
FCREL00300	TQ2-12V	K101
FCREL00300	TQ2-12V	K102
FCIND00100	1uH	L101
FCIND00100	1uH	L102
FCMJ000100	Jumper	MJ101
FCMJ000100	Jumper	MJ102
FCMJ000100	Jumper	MJ103
FCMJ000100	Jumper	MJ104
FCMJ000100	Jumper	MJ105
FCMJ000100	Jumper	MJ106
FCPINZAM00	Clamp WD. 00.2636	MP101
FCPINZAM00	Clamp WD. 00.2636	MP102
FCTUE00300	Nut M3	NV101
FCTUE00300	Nut M3	NV102
FCTUE00300	Nut M3	NV103
FCTUE00300	Nut M3	NV104
FCTUE00300	Nut M3	NV105
FCTUE00300	Nut M3	NV106
FCPORF3150	3/15P	PF101
FCPORF3150	3/15P	PF102
FCPORF3150	3/15P	PF103
FCPORF3150	3/15P	PF104
FCTR437000	BD437	Q101
FCTR437000	BD437	Q102
FCTR471000	BF471	Q103
FCTR472000	BF472	Q104
FCTR340000	MJE340	Q105
FCTR350000	MJE350	Q106
FCTR340000	MJE340	Q107
FCTR350000	MJE350	Q108

PARTS LIST: PRINTED CIRCUIT 11.0956.03.00

OLD VERSION

Code	Description	Reference
FCTR243000	IRFP9240	Q109
FCTR240000	IRFP240	Q110
FCTR243000	IRFP9240	Q111
FCTR240000	IRFP240	Q112
FCXTT08570	BC857B	Q113
FCXTT08470	BC847B	Q114
FCXTT08570	BC857B	Q115
FCXTT08470	BC847B	Q116
FCTR240000	IRFP240	Q117
FCTR243000	IRFP9240	Q118
FCXTT08570	BC857B	Q119
FCXTT08470	BC847B	Q120
FCTI246000	BTB24600B	Q121
FCXTT08570	BC857B	Q122
FCXTT08470	BC847B	Q123
FCTR254010	2N5401	Q124
FCXTT08470	BC847B	Q125
FCXTT08170	BC817/25	Q126
FCTR437000	BD437	Q127
FCTR437000	BD437	Q128
FCTR471000	BF471	Q129
FCTR472000	BF472	Q130
FCTR340000	MJE340	Q131
FCTR350000	MJE350	Q132
FCTR340000	MJE340	Q133
FCTR350000	MJE350	Q134
FCTR243000	IRFP9240	Q135
FCTR240000	IRFP240	Q136
FCTR243000	IRFP9240	Q137
FCTR240000	IRFP240	Q138
FCXTT08570	BC857B	Q139
FCXTT08470	BC847B	Q140
FCXTT08570	BC857B	Q141
FCXTT08470	BC847B	Q142
FCTR240000	IRFP240	Q143
FCTR243000	IRFP9240	Q144
FCXTT08570	BC857B	Q145
FCXTT08470	BC847B	Q146
FCTI246000	BTB24600B	Q147
FCXTT08570	BC857B	Q148
FCXTT08470	BC847B	Q149
FCTR254010	2N5401	Q150
FCXTT08470	BC847B	Q151
FCXTT08170	BC817/25	Q152
FCXR561000	1M	R101
FCXR542150	21k5	R102
FCXR542150	21k5	R103
FCXR542150	21k5	R104
FCXR551000	100k0	R105
FCXR531000	1k0	R106
FCXR531000	1k0	R107
FCXR543480	34k8	R108
FCXR543480	34k8	R109
FCXR531960	1k96	R110
FCXR535620	5k62	R111
FCXR571000	10M	R112

PARTS LIST: PRINTED CIRCUIT 11.0956.03.00

Code	Description	Reference
FCXR531210	1k21	R113
FCXR531210	1k21	R114
FCXR525110	511	R115
FCXR521780	178	R116
FCXR525110	511	R117
FCXR521780	178	R118
FCXR515620	56.2	R119
FCXR531470	1k47	R120
FCXR531470	1k47	R121
FCXR515620	56.2	R122
FCXR526810	681	R123
FCXR531470	1k47	R124
FCRJG44700	4k7	R125
FCXR526810	681	R126
FCXR511000	10.0	R127
FCXR515620	56.2	R128
FCXR523160	316	R129
FCXR515620	56.2	R130
FCXR511000	10.0	R131
FCXR523160	316	R132
FCRF426800	NF68/1	R133
FCRF426800	NF68/1	R134
FCRF232200	NF220/ 1/2	R135
FCRF232200	NF220/ 1/2	R136
FCRF232200	NF220/ 1/2	R137
FCRF232200	NF220/ 1/2	R138
FCRY000100	W0.22/5	R139
FCRY000100	W0.22/5	R140
FCRY000100	W0.22/5	R141
FCRY000100	W0.22/5	R142
FCXR542610	26k1	R143
FCXR542370	23k7	R144
FCRF232200	NF220/ 1/2	R145
FCRF232200	NF220/ 1/2	R146
FCXR525620	562	R147
FCXR525620	562	R148
FCXR524640	464	R149
FCXR524640	464	R150
FCXR543480	34k8	R151
FCXR543480	34k8	R152
FCRY000100	W0.22/5	R153
FCRY000100	W0.22/5	R154
FCXR536810	6k81	R155
FCXR543480	34k8	R156
FCXR543480	34k8	R157
FCXR536810	6k81	R158
FCXR543480	34k8	R159
FCXR543480	34k8	R160
FCXR544640	46k4	R161
FCXR521000	100.0	R162
FCXR521000	100.0	R163
FCXR541330	13k3	R164
FCXR541330	13k3	R165
FCXR521000	100.0	R166
FCXR531000	1k0	R167
FCRY000250	6.8/5W	R168

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PARTS LIST: PRINTED CIRCUIT 11.0956.03.00

Code	Description	Reference
FCXR531000	1k0	R169
FCXR521000	100.0	R170
FCRC521000	10/2	R171
FCRC512200	2.2/2	R172
FCXR534220	4k22	R173
FCXR534220	4k22	R174
FCXR534220	4k22	R175
FCXR534220	4k22	R176
FCXR544640	46k4	R177
FCXR544640	46k4	R178
FCXR544640	46k4	R179
FCXR532150	2k15	R180
FCXR541000	10k0	R181
FCXR531620	1k62	R182
FCXR524640	464	R183
FCXR544640	46k4	R184
FCXR541000	10k0	R185
FCXR551000	100k0	R186
FCXR542150	21k5	R187
FCXR551000	100k0	R188
FCXR531000	1k0	R189
FCXR544640	46k4	R190
FCXR535620	5k62	R191
FCXR562200	2M2	R192
FCXR551000	100k0	R193
FCXR542150	21k5	R194
FCXR552870	287k	R195
FCXR541000	10k0	R196
FCXR551000	100k0	R197
FCXR528250	825	R198
FCXR531470	1k47	R199
FCXR515620	56.2	R200
FCXR528250	825	R201
FCXR515620	56.2	R202
FCXR521780	178	R203
FCXR531000	1k0	R204
FCXR561000	1M	R205
FCXR542150	21k5	R206
FCXR542150	21k5	R207
FCXR542150	21k5	R208
FCXR551000	100k0	R209
FCXR531000	1k0	R210
FCXR531000	1k0	R211
FCXR543480	34k8	R212
FCXR543480	34k8	R213
FCXR571000	10M	R214
FCXR531960	1k96	R215
FCXR535620	5k62	R216
FCXR531210	1k21	R217
FCXR531210	1k21	R218
FCXR525110	511	R219
FCXR521780	178	R220
FCXR525110	511	R221
FCXR521780	178	R222
FCXR515620	56.2	R223
FCXR531470	1k47	R224

OLD VERSION

PARTS LIST: PRINTED CIRCUIT 11.0956.03.00

Code	Description	Reference
FCXR531470	1k47	R225
FCXR515620	56.2	R226
FCXR526810	681	R227
FCXR531470	1k47	R228
FCRJG44700	4k7	R229
FCXR526810	681	R230
FCXR511000	10.0	R231
FCXR515620	56.2	R232
FCXR523160	316	R233
FCXR523160	316	R234
FCXR515620	56.2	R235
FCXR511000	10.0	R236
FCRF426800	NF68/1	R237
FCRF426800	NF68/1	R238
FCRF232200	NF220/ 1/2	R239
FCRF232200	NF220/ 1/2	R240
FCRF232200	NF220/ 1/2	R241
FCRF232200	NF220/ 1/2	R242
FCRY000100	W0.22/5	R243
FCRY000100	W0.22/5	R244
FCRY000100	W0.22/5	R245
FCRY000100	W0.22/5	R246
FCXR542610	26k1	R247
FCXR542370	23k7	R248
FCRF232200	NF220/ 1/2	R249
FCRF232200	NF220/ 1/2	R250
FCXR525620	562	R251
FCXR525620	562	R252
FCXR524640	464	R253
FCXR524640	464	R254
FCXR543480	34k8	R255
FCXR543480	34k8	R256
FCRY000100	W0.22/5	R257
FCRY000100	W0.22/5	R258
FCXR536810	6k81	R259
FCXR543480	34k8	R260
FCXR543480	34k8	R261
FCXR536810	6k81	R262
FCXR543480	34k8	R263
FCXR543480	34k8	R264
FCXR544640	46k4	R265
FCXR521000	100.0	R266
FCXR521000	100.0	R267
FCXR541330	13k3	R268
FCXR541330	13k3	R269
FCXR521000	100.0	R270
FCXR531000	1k0	R271
FCRY000250	6.8/5W	R272
FCXR531000	1k0	R273
FCXR521000	100.0	R274
FCRC521000	10/2	R275
FCRC512200	2.2/2	R276
FCXR534220	4k22	R277
FCXR534220	4k22	R278
FCXR534220	4k22	R279
FCXR534220	4k22	R280

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PARTS LIST: PRINTED CIRCUIT 11.0956.03.00

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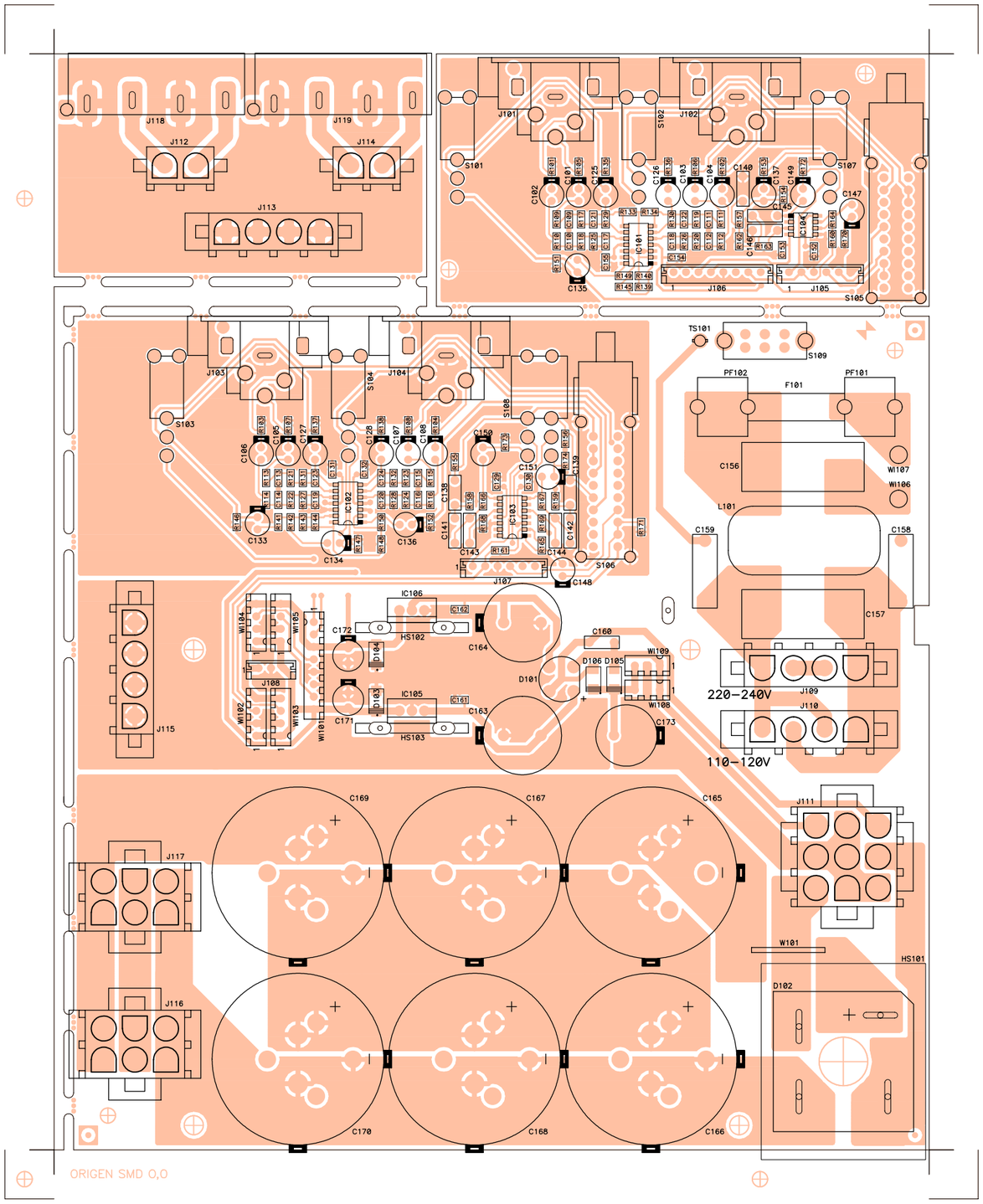
Code	Description	Reference
FCXR544640	46k4	R281
FCXR544640	46k4	R282
FCXR544640	46k4	R283
FCXR544640	46k4	R284
FCXR542150	21k5	R285
FCXR544640	46k4	R286
FCXR542150	21k5	R287
FCXR541000	10k0	R288
FCXR552870	287k	R289
FCXR551000	100k0	R290
FCXR515620	56.2	R291
FCXR515620	56.2	R292
FCXR521780	178	R293
FCXR531000	1k0	R294
FCT8040060	Screw M4x6 SPAN	SC101
FCT7503008	Screw M3x8	SC102
FCT7503008	Screw M3x8	SC103
FCT7503008	Screw M3x8	SC104
FCT7503008	Screw M3x8	SC105
FCT7503008	Screw M3x8	SC106
FCT7503008	Screw M3x8	SC107
FCSEPPM000	Plastic Spacer f/board ct.	SC108
FCSEPPM000	Plastic Spacer f/board ct.	SC109
FCT8040060	Screw M4x6 SPAN	SC110
FCT8040060	Screw M4x6 SPAN	SC111
FCT8030100	Screw M3x10 SPA	SC112
FCT8030100	Screw M3x10 SPA	SC113
FCT8030100	Screw M3x10 SPA	SC114
FCT8030100	Screw M3x10 SPA	SC115
FCT8030100	Screw M3x10 SPA	SC116
FCT8030100	Screw M3x10 SPA	SC117
FCT8030100	Screw M3x10 SPA	SC118
FCT8030100	Screw M3x10 SPA	SC119
FCT8030100	Screw M3x10 SPA	SC120
FCT8030100	Screw M3x10 SPA	SC121
FCSEPPM000	Plastic Spacer f/board ct.	SC122
FCSEPPM000	Plastic Spacer f/board ct.	SC123
FCT8030100	Screw M3x10 SPA	SC124
FCT8030100	Screw M3x10 SPA	SC125
FCT8040060	Screw M4x6 SPAN	SC126
FCTERMF280	Faston 2.8mm	TS101
FCTERMF280	Faston 2.8mm	TS102
FCTERMF280	Faston 2.8mm	TS103
FCTERMF280	Faston 2.8mm	TS104
FCMECPON19	19mm	W100
FCMECPON19	19mm	W101
FCMECPON19	19mm	W102
FCMECPON19	19mm	W103
FCMECPON19	19mm	W104
FCMECPON19	19mm	W105
FCMECPON19	19mm	W106
FCMECPON19	19mm	W107
FCMECPON19	19mm	W108
FCMECPON19	19mm	W109
FCMECPON19	19mm	W110
FCMECPON19	19mm	W111

PARTS LIST: PRINTED CIRCUIT 11.0956.03.00

Code	Description	Reference
FCMECPON19	19mm	W112
FCMECPON19	19mm	W113
FCMECPON19	19mm	W114
FCMECPON19	19mm	W115
FCMECPON19	19mm	W116
FCMECPON19	19mm	W117
FCARM32010	Metal Washer 3.2x6x1	WA101
FCARM32010	Metal Washer 3.2x6x1	WA102
FCARDE0300	Toothed Washer M3	WA103
FCARM32010	Metal Washer 3.2x6x1	WA104
FCARM32010	Metal Washer 3.2x6x1	WA105
FCARM32010	Metal Washer 3.2x6x1	WA106
FCARM32010	Metal Washer 3.2x6x1	WA107
FCARM32010	Metal Washer 3.2x6x1	WA108
FCARM32010	Metal Washer 3.2x6x1	WA109
FCARM32010	Metal Washer 3.2x6x1	WA110
FCARM32010	Metal Washer 3.2x6x1	WA111
FCARM32010	Metal Washer 3.2x6x1	WA112
FCARM32010	Metal Washer 3.2x6x1	WA113
FCARDE0300	Toothed Washer M3	WA114
FCARDE0300	Toothed Washer M3	WA115
FCARDE0300	Toothed Washer M3	WA116
FCARDE0300	Toothed Washer M3	WA117
FCARDE0300	Toothed Washer M3	WA118
FC0H111500	1111.05.00	WI107
FC0H110350	1110.03.50	WI108

OLD VERSION



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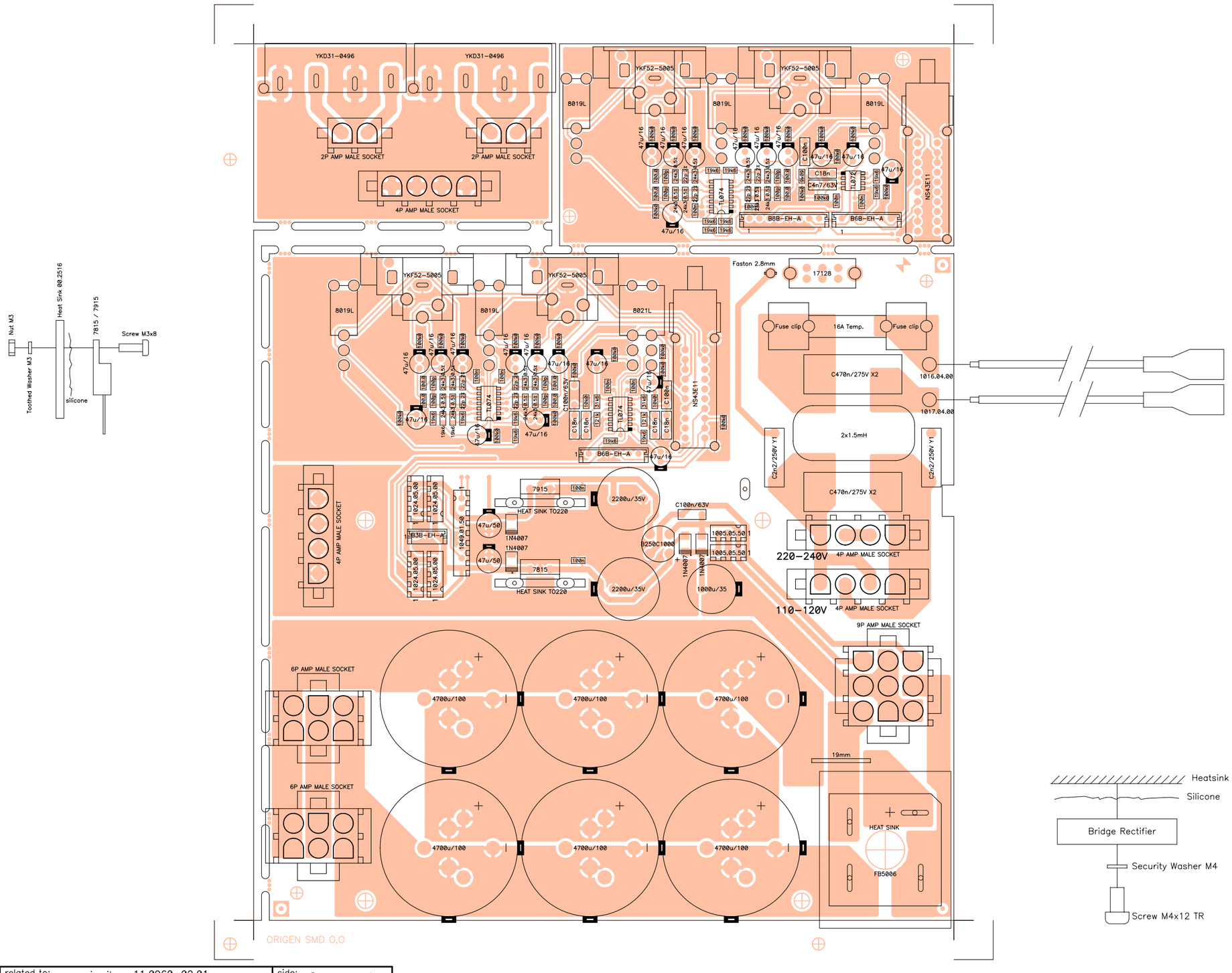
number: 33.0818	version: 01.02	project n: EP14-02	title: Supply + Inputs + Outs
drawn by: M. Amoros	date: 020718	product n: MPA 4-400	
		approved: Angel Sanuy	



ECLERee LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0960-02.01 schema no: 10.0629-01.02 insertion file no: 81.0076-01.00	side: Component view: Value	
number: 33.0819	version: 01.02	project n: EP14-02	title: Supply + Inputs + Outs
drawn by: M. Amoros	date: 020718	product n: MPA 4-400	
		approved: Angel Sanuy	

IMPORTANT NOTE: Apply Clear Silicone Sealant among the 4700u/100V electrolitic capacitors

PARTS LIST: PRINTED CIRCUIT 11.0960.02.01

Code	Description	Reference
FCCE100000	47u/16	C101
FCCE100000	47u/16	C102
FCCE100000	47u/16	C103
FCCE100000	47u/16	C104
FCCE100000	47u/16	C105
FCCE100000	47u/16	C106
FCCE100000	47u/16	C107
FCCE100000	47u/16	C108
FCXCD21000	100p	C109
FCXCD21000	100p	C110
FCXCD21000	100p	C111
FCXCD21000	100p	C112
FCXCD21000	100p	C113
FCXCD21000	100p	C114
FCXCD21000	100p	C115
FCXCD21000	100p	C116
FCXCN12201	22p 2%	C117
FCXCN12201	22p 2%	C118
FCXCN12201	22p 2%	C119
FCXCN12201	22p 2%	C120
FCXCN12201	22p 2%	C121
FCXCN12201	22p 2%	C122
FCXCN12201	22p 2%	C123
FCXCN12201	22p 2%	C124
FCCE100000	47u/16	C125
FCCE100000	47u/16	C126
FCCE100000	47u/16	C127
FCCE100000	47u/16	C128
FCXCD41000	100n	C129
FCXCD41000	100n	C130
FCXCD41000	100n	C131
FCXCD41000	100n	C132
FCCE100000	47u/16	C133
FCCE100000	47u/16	C134
FCCE100000	47u/16	C135
FCCE100000	47u/16	C136
FCCE100000	47u/16	C137
FCCDK11000	C100n/63V	C138
FCCDK11000	C100n	C139
FCCDK11000	C100n	C140
FCCDK50180	C18n	C141
FCCDK50180	C18n	C142
FCCDK50180	C18n	C143
FCCDK50180	C18n	C144
FCCDK50180	C18n	C145
FCCDK10047	C4n7/63V	C146
FCCE100000	47u/16	C147
FCCE100000	47u/16	C148
FCCE100000	47u/16	C149
FCCE100000	47u/16	C150
FCCE100000	47u/16	C151
FCXCD41000	100n	C152
FCXCD41000	100n	C153
FCXCD41000	100n	C154
FCXCD41000	100n	C155
FCCDH71470	C470n/275V X2	C156

PARTS LIST: PRINTED CIRCUIT 11.0960.02.01

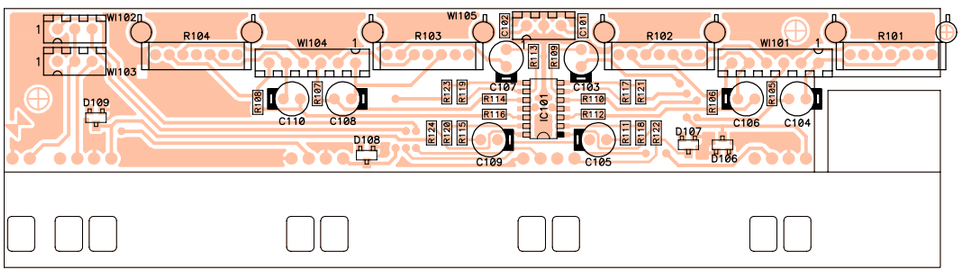
Code	Description	Reference
FCCDH71470	C470n/275V X2	C157
FCCCD22250	C2n2/250V Y1	C158
FCCCD22250	C2n2/250V Y1	C159
FCCDK11000	C100n/63V	C160
FCXCD41000	100n	C161
FCXCD41000	100n	C162
FCCE212200	2200u/35V	C163
FCCE212200	2200u/35V	C164
FCCE331525	4700u/100	C165
FCCE331525	4700u/100	C166
FCCE331525	4700u/100	C167
FCCE331525	4700u/100	C168
FCCE331525	4700u/100	C169
FCCE331525	4700u/100	C170
FCCE250470	47u/50	C171
FCCE250470	47u/50	C172
FCCE211000	1000u/35	C173
FCCI009600	Printed Circuit 11.0960	CI101
FCREC25100	B250C1000	D101
FCREC50060	FB5006	D102
FCXDD40070	1N4007	D103
FCXDD40070	1N4007	D104
FCXDD40070	1N4007	D105
FCXDD40070	1N4007	D106
FCFUS80400	16A Temp.	F101
FCRAD11515	Heatsink f/ Rect.	HS101
FCMECT0220	Heatsink f/ TO220	HS102
FCMECT0220	Heatsink f/ TO220	HS103
FCIC074010	TL074	IC101
FCIC074010	TL074	IC102
FCIC074010	TL074	IC103
FCIC072010	TL072	IC104
FCREG78150	7815	IC105
FCREG79150	7915	IC106
FCBASX0900	YKF52-5005	J101
FCBASX0900	YKF52-5005	J102
FCBASX0900	YKF52-5005	J103
FCBASX0900	YKF52-5005	J104
FCCTM00060	B6B-EH-A	J105
FCCTM00080	B8B-EH-A	J106
FCCTM00060	B6B-EH-A	J107
FCCTM00030	B3B-EH-A	J108
FCCTAMP040	4P AMP MALE SOCKET	J109
FCCTAMP040	4P AMP MALE SOCKET	J110
FCCTAMP090	9P AMP MALE SOCKET	J111
FCCTAMP020	2P AMP MALE SOCKET	J112
FCCTAMP040	4P AMP MALE SOCKET	J113
FCCTAMP020	2P AMP MALE SOCKET	J114
FCCTAMP040	4P AMP MALE SOCKET	J115
FCCTAMP060	6P AMP MALE SOCKET	J116
FCCTAMP060	6P AMP MALE SOCKET	J117
FCCTJAL100	YKD31-0496	J118
FCCTJAL100	YKD31-0496	J119
FCBB2X3500	2x1.5mH	L101
FCTUE00300	Nut M3	NV101
FCTUE00300	Nut M3	NV102

PARTS LIST: PRINTED CIRCUIT 11.0960.02.01

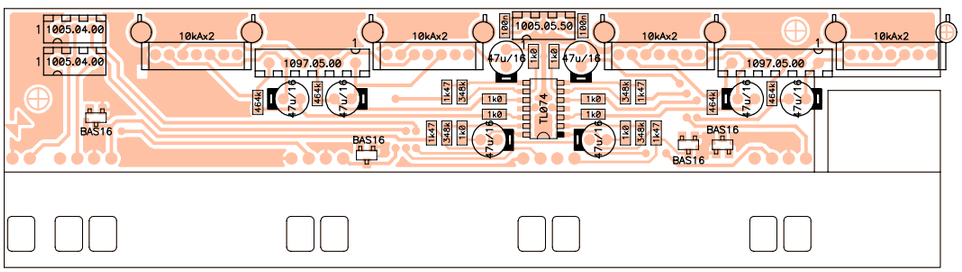
Code	Description	Reference
FCPORF0200	Fuse clip	PF101
FCPORF0200	Fuse clip	PF102
FCXR551000	100k0	R101
FCXR551000	100k0	R102
FCXR551000	100k0	R103
FCXR551000	100k0	R104
FCXR551000	100k0	R105
FCXR551000	100k0	R106
FCXR551000	100k0	R107
FCXR551000	100k0	R108
FCXR521000	100.0	R109
FCXR521000	100.0	R110
FCXR521000	100.0	R111
FCXR521000	100.0	R112
FCXR521000	100.0	R113
FCXR521000	100.0	R114
FCXR521000	100.0	R115
FCXR521000	100.0	R116
FCXR642430	24k3 0.5%	R117
FCXR642430	24k3 0.5%	R118
FCXR642430	24k3 0.5%	R119
FCXR642430	24k3 0.5%	R120
FCXR642430	24k3 0.5%	R121
FCXR642430	24k3 0.5%	R122
FCXR642430	24k3 0.5%	R123
FCXR642430	24k3 0.5%	R124
FCXR642430	24k3 0.5%	R125
FCXR642430	24k3 0.5%	R126
FCXR642430	24k3 0.5%	R127
FCXR642430	24k3 0.5%	R128
FCXR642430	24k3 0.5%	R129
FCXR642430	24k3 0.5%	R130
FCXR642430	24k3 0.5%	R131
FCXR642430	24k3 0.5%	R132
FCXR541960	19k6	R133
FCXR541960	19k6	R134
FCXR551000	100k0	R135
FCXR551000	100k0	R136
FCXR551000	100k0	R137
FCXR551000	100k0	R138
FCXR541960	19k6	R139
FCXR541960	19k6	R140
FCXR541960	19k6	R141
FCXR541960	19k6	R142
FCXR541960	19k6	R143
FCXR541960	19k6	R144
FCXR541960	19k6	R145
FCXR551000	100k0	R146
FCXR551000	100k0	R147
FCXR541960	19k6	R148
FCXR541960	19k6	R149
FCXR541960	19k6	R150
FCXR551000	100k0	R151
FCXR551000	100k0	R152
FCXR551000	100k0	R153
FCXR551000	100k0	R154

PARTS LIST: PRINTED CIRCUIT 11.0960.02.01

Code	Description	Reference
FCXR551000	100k0	R155
FCXR551000	100k0	R156
FCXR539090	9k09	R157
FCXR541000	10k0	R158
FCXR541000	10k0	R159
FCXR541960	19k6	R160
FCXR541960	19k6	R161
FCXR551000	100k0	R162
FCXR551000	100k0	R163
FCXR541960	19k6	R164
FCXR541960	19k6	R165
FCXR543160	31k6	R166
FCXR543160	31k6	R167
FCXR551210	121k	R168
FCXR551210	121k	R169
FCXR551000	100k0	R170
FCXR551000	100k0	R171
FCXR551000	100k0	R172
FCXR551000	100k0	R173
FCXR551000	100k0	R174
FCINTAP130	8019L	S101
FCINTAP130	8019L	S102
FCINTAP130	8019L	S103
FCINTAP130	8019L	S104
FCINTAP090	NS43E11	S105
FCINTAP090	NS43E11	S106
FCINTAP130	8019L	S107
FCINTAP140	8021L	S108
FCINTD4000	17128	S109
FCT3804012	Screw M4x12 TR	SC100
FCT7503008	Screw M3x8	SC101
FCT7503008	Screw M3x8	SC102
FCTERMF280	Faston 2.8mm	TS101
FCMECPON19	19mm	W101
FCARDE0300	Toothed Washer f/M3	WA101
FCARDE0300	Toothed Washer f/M3	WA102
FC4N049150	1049.01.50	WI101
FC6J024500	1024.05.00	WI102
FC6J024500	1024.05.00	WI103
FC6J024500	1024.05.00	WI104
FC6J024500	1024.05.00	WI105
FC2F017400	1017.04.00	WI106
FC2F016400	1016.04.00	WI107
FC4I005550	1005.05.50	WI108
FC4I005550	1005.05.50	WI109

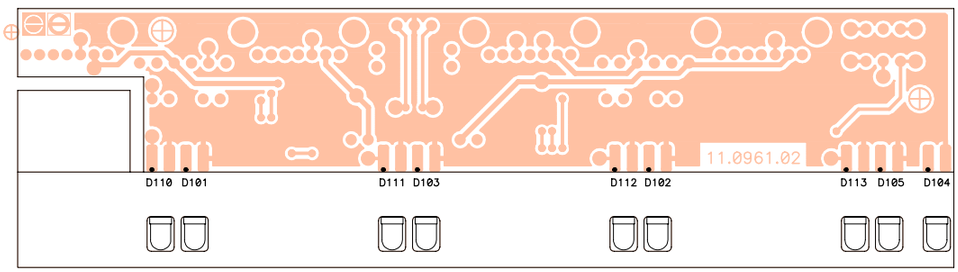


ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0961-02.01 schema no: 10.0632-01.02 insertion file no: 81.0077-01.00	side: Component view: Reference	
number: 33.0810 / version: 01.02	project n: EP14-02	title: Leds + Potentiomtrs Ct.	
drawn by: M. Amoros / date: 020718	product n: MPA 4-400	approved: Angel Sanuy	



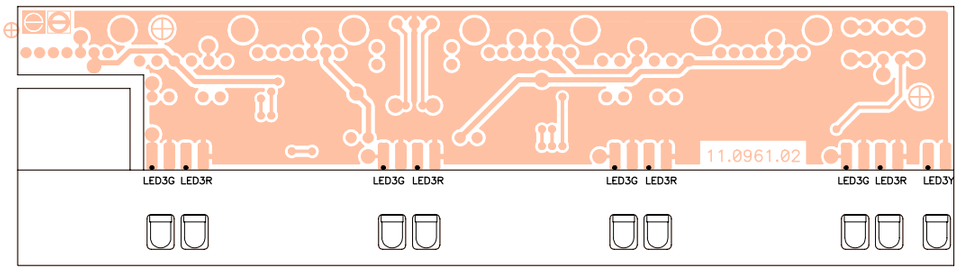
Note: Leds mounted on the bottom or solder side
and touching the window border (see drawing)

ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.		related to: circuit no: 11.0961-02.01 schema no: 10.0632-01.02 insertion file no: 81.0077-01.00	side: Component view: Value	
		project n: EP14-02	title: Leds + Potentiomtrs Ct.	
number: 33.0811	version: 01.02	product n: MPA 4-400		
drawn by: M. Amoros	date: 020718	approved: Angel Sanuy		



Note: Leds mounted on the bottom or solder side
and touching the window border (see drawing)

ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.		related to: circuit no: 11.0961-02.01 schema no: 10.0632-01.02 insertion file no:	side: Solder view: Reference	
number: 33.0812	version: 01.02	project n: EP14-02	title: Leds + Potentiomtrs Ct.	
drawn by: M. Amoros	date: 020718	product n: MPA 4-400 approved: Angel Sanuy		



Note: Leds mounted on the bottom or solder side
and touching the window border (see drawing)

ECLER LABORATORIO DE ELECTRO-ACUSTICA S.A.	related to: circuit no: 11.0961-02.01 schema no: 10.0632-01.02 insertion file no:	side: Solder view: Value	
number: 33.0813	version: 01.02	project n: EP14-02	title: Leds + Potentiomtrs Ct.
drawn by: M. Amoros	date: 020718	product n: MPA 4-400 approved: Angel Sanuy	

PARTS LIST: PRINTED CIRCUIT 11.0961.02.01

Code	Description	Reference
FCXCD41000	100n	C101
FCXCD41000	100n	C102
FCCE100000	47u/16	C103
FCCE100000	47u/16	C104
FCCE100000	47u/16	C105
FCCE100000	47u/16	C106
FCCE100000	47u/16	C107
FCCE100000	47u/16	C108
FCCE100000	47u/16	C109
FCCE100000	47u/16	C110
FCCI009610	Printed Circuit 11.0961	CI101
FCLED300RO	LED3R	D101
FCLED300RO	LED3R	D102
FCLED300RO	LED3R	D103
FCLED300AM	LED3Y	D104
FCLED300RO	LED3R	D105
FCXDDBAS16	BAS16	D106
FCXDDBAS16	BAS16	D107
FCXDDBAS16	BAS16	D108
FCXDDBAS16	BAS16	D109
FCLED300VE	LED3G	D110
FCLED300VE	LED3G	D111
FCLED300VE	LED3G	D112
FCLED300VE	LED3G	D113
FCIC074010	TL074	IC101
FCPR210040	10kAx2	R101
FCPR210040	10kAx2	R102
FCPR210040	10kAx2	R103
FCPR210040	10kAx2	R104
FCXR554640	464k	R105
FCXR554640	464k	R106
FCXR554640	464k	R107
FCXR554640	464k	R108
FCXR531000	1k0	R109
FCXR531000	1k0	R110
FCXR531000	1k0	R111
FCXR531000	1k0	R112
FCXR531000	1k0	R113
FCXR531000	1k0	R114
FCXR531000	1k0	R115
FCXR531000	1k0	R116
FCXR553480	348k	R117
FCXR553480	348k	R118
FCXR553480	348k	R119
FCXR553480	348k	R120
FCXR531470	1k47	R121
FCXR531470	1k47	R122
FCXR531470	1k47	R123
FCXR531470	1k47	R124
FC1L097500	1097.05.00	WI101
FC4I005400	1005.04.00	WI102
FC4I005400	1005.04.00	WI103
FC1L097500	1097.05.00	WI104
FC4I005550	1005.05.50	WI105

PRELIMINARY:

- Check the *Ground Link* switch.
- Be sure that the correct cable types are used.
- Main POWER switch OFF.
- Select a 1KHz 0dB output signal on the generator, but keep it turned off.
- Place four 4Ω load impedances into outputs 1, 2, 3 and 4. If it's not possible, just place one 4Ω load into the tested channel output.
- Connect the millivoltmeter and the oscilloscope to channel one.
- Turn down all potentiometers to their minimum position.
- Connect the power amplifier's mains plug to a 230Vac variac output.

VERIFICATION:

- Retire fuse F101 (or its matching fuse on any other tested channel), placed at channel one's +Vcc. In its place, insert a 10 A ranged DC ammeter.
- Connect the power amplifier mains plug to the variac output, turned down to deliver 0V. Switch over the unit's main POWER switch to ON. Slowly increase the variac's output until it reaches 230V output voltage, and verify that the current consumption adjustments remain correct: 150mA. If this value has changed, rectify it. Once adjusted, seal the potentiometer with fixing lacquer.
- Retire the ammeter and replace instead the F101 fuse. Caution! The unit's power supply will be charged! Previously the power supply should be properly discharged, or disconnect the module's power supply wires (yellow-, black- and brown-colored wires) to avoid electrical shocks. Repeat this procedure on all other channels.
- Once the current consumption is checked, switch off and again on the unit with its main power switch, verify that the green neon lights up, that the unit first remains for 10 seconds in STANDBY mode and that the cooling fans run up to maximum speed.
- Apply a 0dB 1KHz signal to XLR-type input 1, by turning on the signal generator.
- Connect a 4Ω load to this channel's output.
- Verify the unit's output power when working at nominal mains voltage (230Vac). Vo = 41V_{rms} (millivoltmeter)
- To verify the ANTICLIP function, increase the input signal level above 0dB and check that the clipping output signal is smoothened. Place a mini-jumper into the test point terminal near the VTL5C8 device, verify that the anticlip function now is triggered earlier and rounds the clipping signal even more. Check the CLIP indicator LED's are lit, and, when reducing the output signal level in 0'5 or 1dB, the CLIP LEDs turn off. Leave the mini-jumper inserted.
- Verify the unit's bandwidth curve, which, with a 2KHz 0'5V input signal, should be linear between 20Hz and 20KHz without inducing any distortion to the output signal. Also check that when applying an input signal up to 50KHz, the unit's output level only decreases in 1 or 2 dB, and no visible distortion is observed.

- Connect a load impedance formed by a 4Ω resistor shunted to a 1μ5F capacitor, and apply a 1KHz square waveform input signal. Using an oscilloscope, observe the output signal, at the flat level areas of the squared waveform, only two or three ringings should be detected both at positive and negative slope flanges. Increase the input signal level until the displayed signal starts clipping. Check that, even when clipping, the ringings do not grow, and no more ringings than before appear either.
- Verify the THERMAL protection circuitry. Short the unit's thermal probe pins 1 and 2 (see the component placement sheet), and verify that the relay releases, while the *THERMAL* indicator light up, as the output signal is cutted off and the cooling fan increases its speed until it reaches maximum airflow.

PROTECTIONS

- Signal generator OFF, 1V scale, select a 1KHz output signal and keep the level potentiometer down to its minimum.
- Connect a 0'5Ω load impedance.
- Connect the oscilloscope to the module's output.
- Switch on the generator and turn up slowly the output level potentiometer, while checking that the output voltage keeps below these limits, as listed below:

FIRST EVALUATION POINT: 15Vpp (240V)
SECOND EVALUATION POINT: 18Vpp (210V)

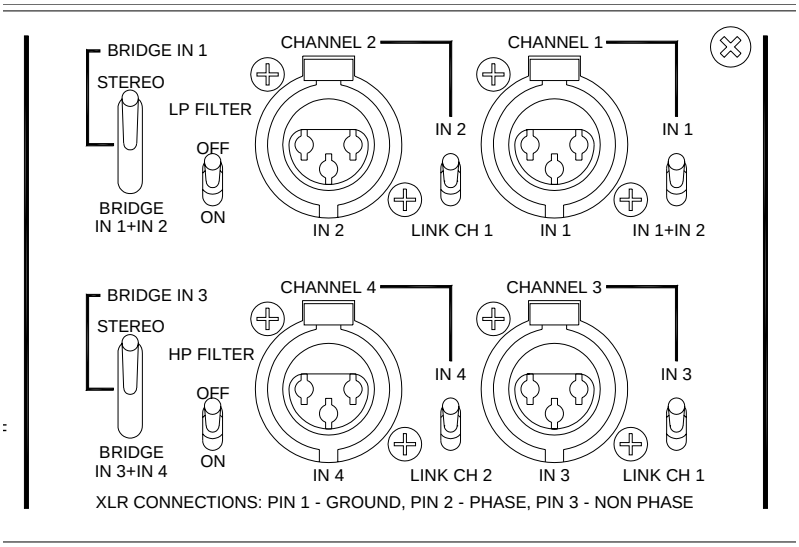
Note: the signal clipping should appear without any distortion or ringing. Both evaluation points are obtained by adjusting the variac's output voltage.

- Repeat this process on all the other channels.

CHECKING INPUT SELECTION SWITCHES.

Initial positioning:
- IN1/IN1 + IN2 → IN1
- IN2/LINK IN1 → LINK IN1
- LP FILTER ON/OFF → OFF
- ST/B IN1/B IN1 + IN2 → ST
- IN3/LINK1 → LINK IN1
- IN4/LINK2 → LINK IN2
- HP FILTER ON/OFF → OFF

0dBV 1KHz input signal to IN1
Millivoltmeter/oscilloscope connected to channel 1 and 2.



- Channel 1's Signal Present indicating LED lights up. Turn up channel one's potentiometer. Verify its sweep. Vo = 41 V_{rms} . Check that the output corresponds to the used channel.
- Channel 2's Signal Present indicating LED lights up. Turn up channel two's potentiometer. Verify its sweep. Vo = 41 V_{rms} . Check that the output corresponds to the used channel.
- Both outputs are in phase.
- On the channel's ST/B IN1/B IN1 + IN2 switch, select IN1 + IN2. By now both outputs should be push-pull configured. The S.P.2 indicating LED turns off. Verify that now only channel one's input potentiometer is active, and leave it up to its maximum position.
- Change the millivoltmeter/oscilloscope test probes from the actual outputs to outputs 3-4.
- Verify that channel 3's Signal Present indicating LED is lit. Turn up channel 3's input potentiometer. Verify it's sweep. Vo = 41 V_{rms} . Check that the output corresponds to the used channel.
- Verify that channel 4's signal present indicating LED is lit. Turn up channel 4's input potentiometer. Verify it's sweep. Vo = 41 V_{rms} . Check that the output corresponds to the used channel.
- Both outputs are in phase.
- On the unit's ST/B IN1/B IN3 + IN4 switch, select IN3 + IN4. By now both outputs should be push-pull configured. The S.P.4 indicating LED turns off. Verify that now only channel three's input potentiometer is active, and leave it up to its maximum position.
- Verify that all CLIP-indicating LED's are lit. If necessary, add 1 or 2 dB's to the input signal level.
- On the IN1/IN1 + IN2 switch, select IN1 + IN2. Check that the output level has dropped 6dB.
- Leave the switch again to IN1.

BURNING TEST.

- Leave the unit loaded and connected to its nominal mains voltage, while applying input signal, and keep it working at 3dB under its maximum output level during 24 hours.

SAFETY VERIFICATION TESTS.

Preliminary:

- Unplug the unit to be tested from the mains outlet.
- Short all ground terminals from signal inputs, outputs and other external connectors, except the mains plug's ground.
- Turn ON the unit's main power switch.

Ground continuity test:

- Connect the tester's probes between the mains ground contact and the unit's backside main ground test point. When applying a 10A current, verify that the ground impedance is lower than 0'1Ω.

Electrical insulation test:

- Connect the electrical insulation tester probes between the mains outlet ground contact and both shorted mains input poles.
- Adjust the tester's current limit down to 10mA.
- Apply 1500Vac during 5 seconds.
- The unit's insulation should be able to resist this voltage, without generating spurious sparks or a sparkover effect, and the tester may not detect any misfunction.

CAUTION: Do not disconnect nor touch the test probes until the test has finished completely!

VERIFICATION USING MUSIC

- This unit is a four channel power amplifier, with a flexible input channel selection system, which actually increases its range of use and connection applications. All input selection stages and input combinations have been fully verified in the "CHECKING INPUT SELECTION SWITCHES" section.

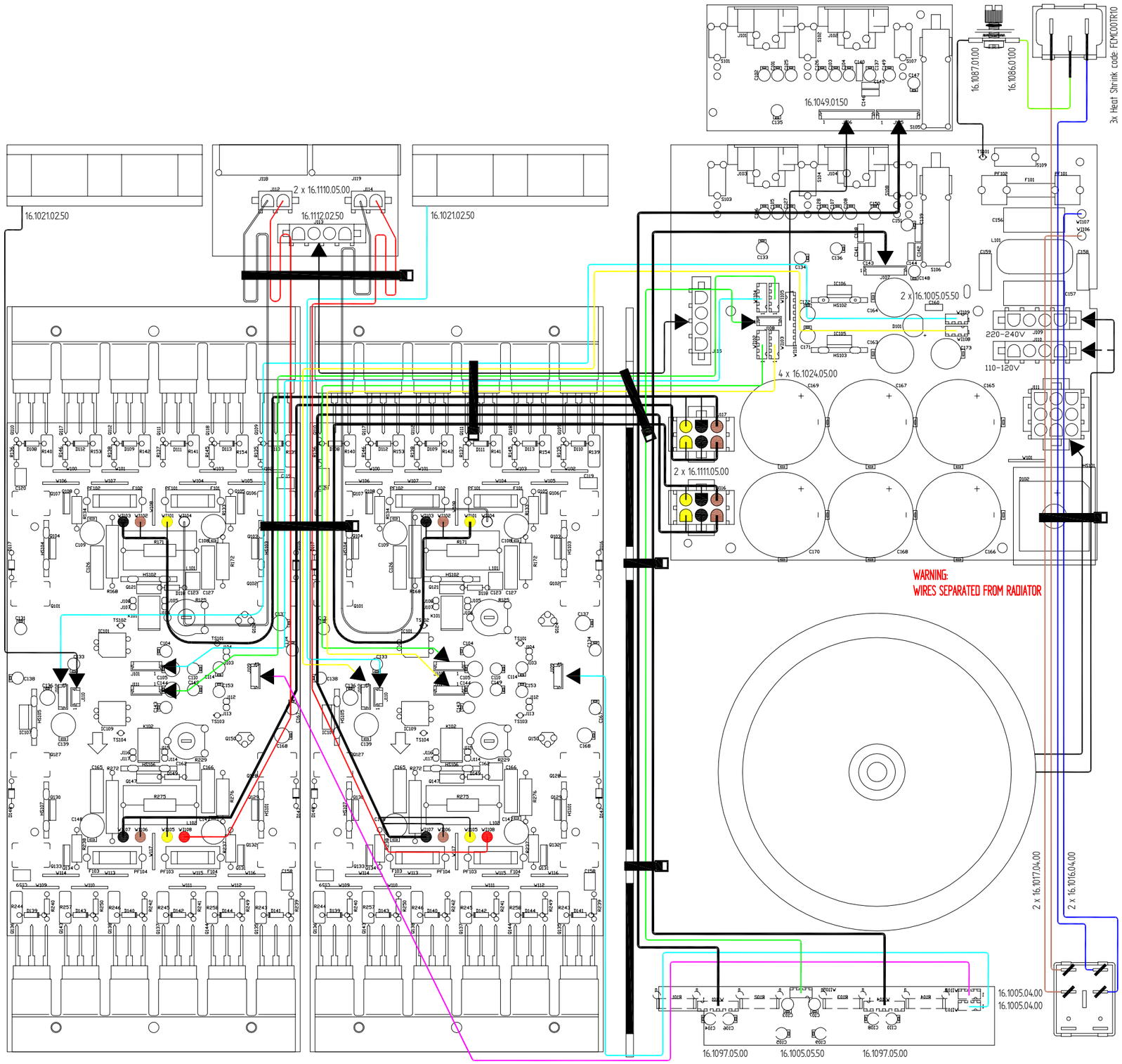
- Verify all inputs and outputs. Release all the input selection switches.
- Verify the input potentiometers sweeps, which should completely cut off the signal when turned down, and should not produce any noise or scratching.
- Verify the unit's sound quality, free from distortion and noise.
- Verify background noise in each channel.
- Check the low pass filters on channel 1, and the high pass filters on channels 3 and 4.
- Hit the unit several times against your working desk to ensure that there are no failing contacts and defective junctions.
- While applying input signal, short the unit's output contacts. Verify that when the shorting is retired, the unit recovers its normal functioning status.

QUALITY CONTROL

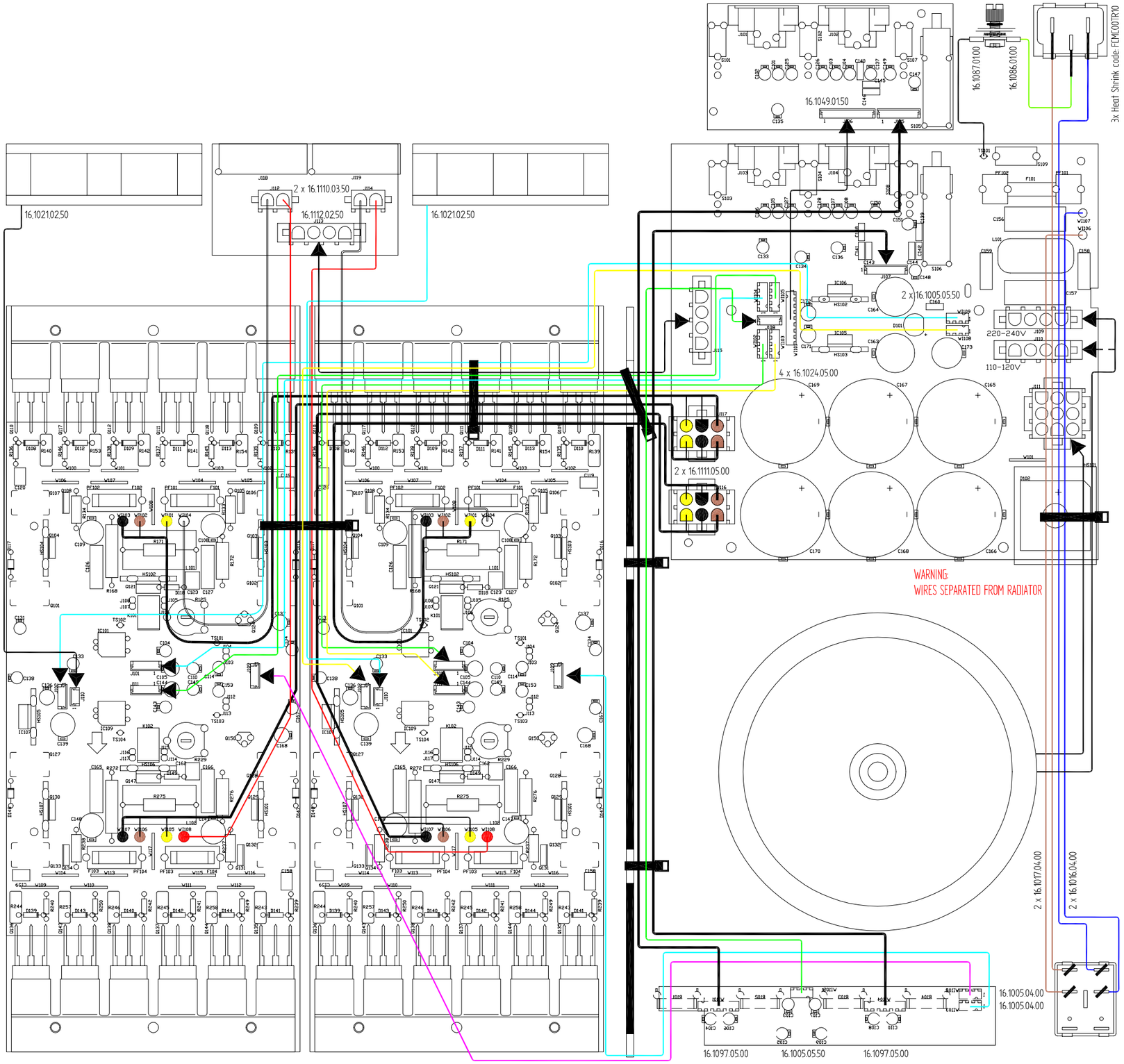
All mechanical parts should be visually revised, in order to detect scratches on the unit's painting; all screws should be on their place, correctly tight and unmarked. Check out the unit's general presentation.

POWER 20-20kHz 1% THD

1 Channel @ 4Ω	410 WRMS
1 Channel @ 8Ω	230 WRMS
All Channels @ 4Ω	305 WRMS
All Channels @ 8Ω	200 WRMS
1 Bridged channel @ 8Ω (all channels driven)	610 WRMS
Frequency response (-1dB)	7Hz - 50kHz
Filter (Hi-Lo) 3rd order Butterworth	160Hz
THD+Noise @ 1kHz Full Pwr.	<0,05%
Intermodulation distortion 50Hz & 7kHz, 4:1	<0,08%
TIM 100	<0,03%
S+N/N 20Hz -20kHz @ 1W/4Ω	>85dB
Damping factor 1kHz @ 8Ω	>300
Slew Rate	±50V/μs
Channel crosstalk @ 1kHz	>70dB
Input Sensitivity / Impedance	0dBV / >20kΩ
Anticlip	1 & 5% THD
Power consumption (max. Out)	2550 VA
Dimensions	Panel 482.6x88 mm
	Depth 415 mm
Weight	19.4kg
Mains Depending on your country	See characteristics in the back of the unit.



ECLER	drawn: J. Colomines	date: 061031	project: EP14-02	product: MPA4-400
number: 31.0172	version 01.02	approved:	title: WIRING DIAGRAM	

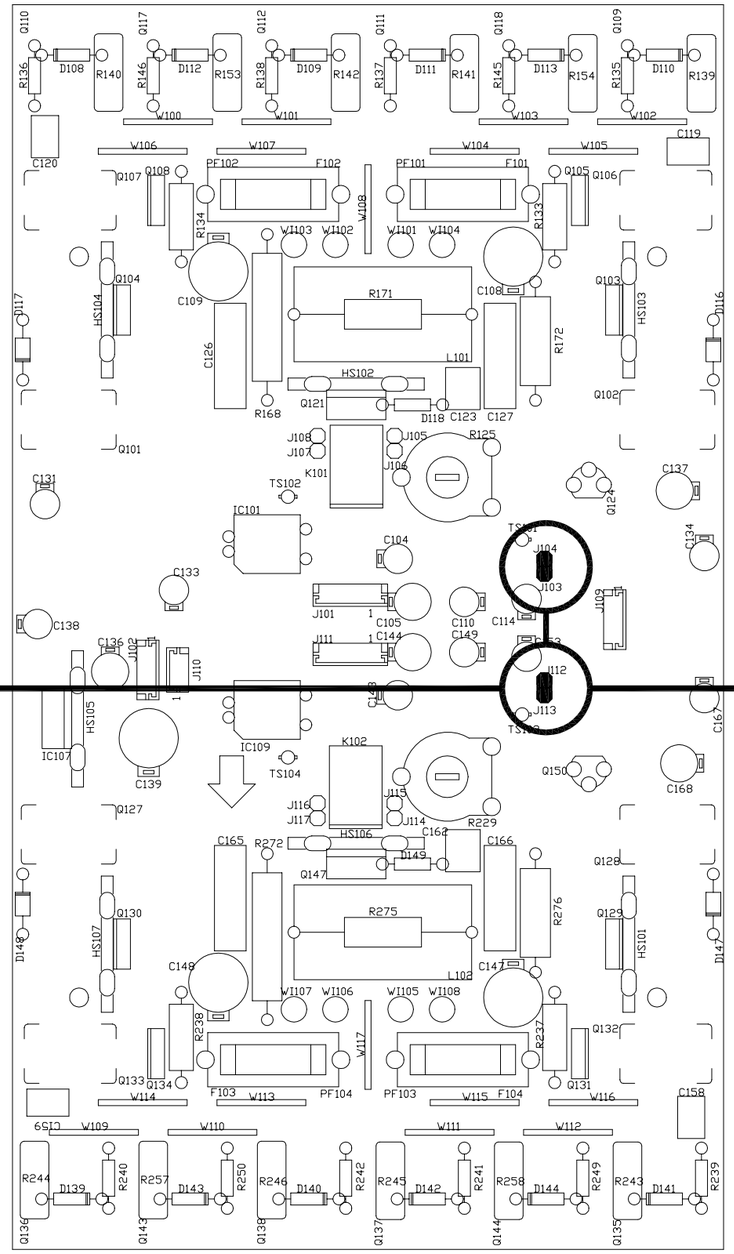


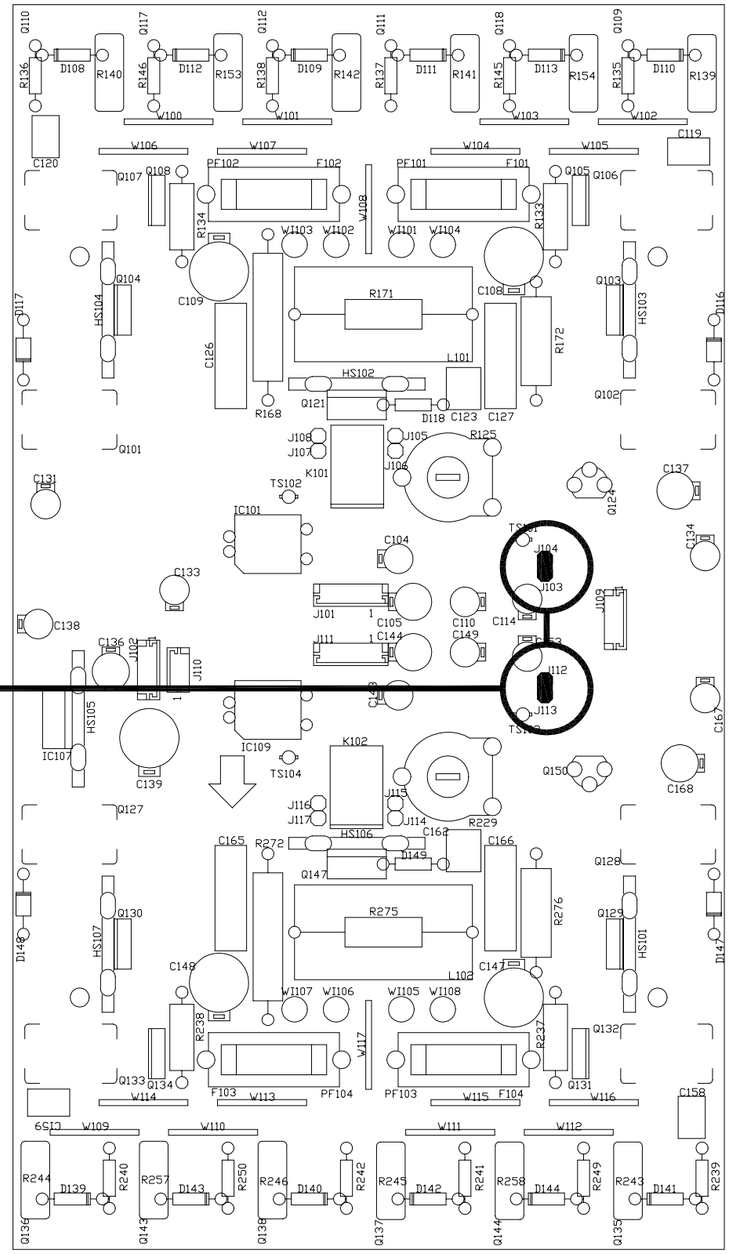
ECLER	drawn: J. Colomines	date: 021217	project: EP14-02	product: MPA4-400
number: 31.0172	version: 01.01	approved:	title: WIRING DIAGRAM	

ANTICLIP HARD
4xJUMPERS ON

ANTICLIP SOFT
4xJUMPERS OFF

FACTORY ADJUSTED TO "HARD" POSITION

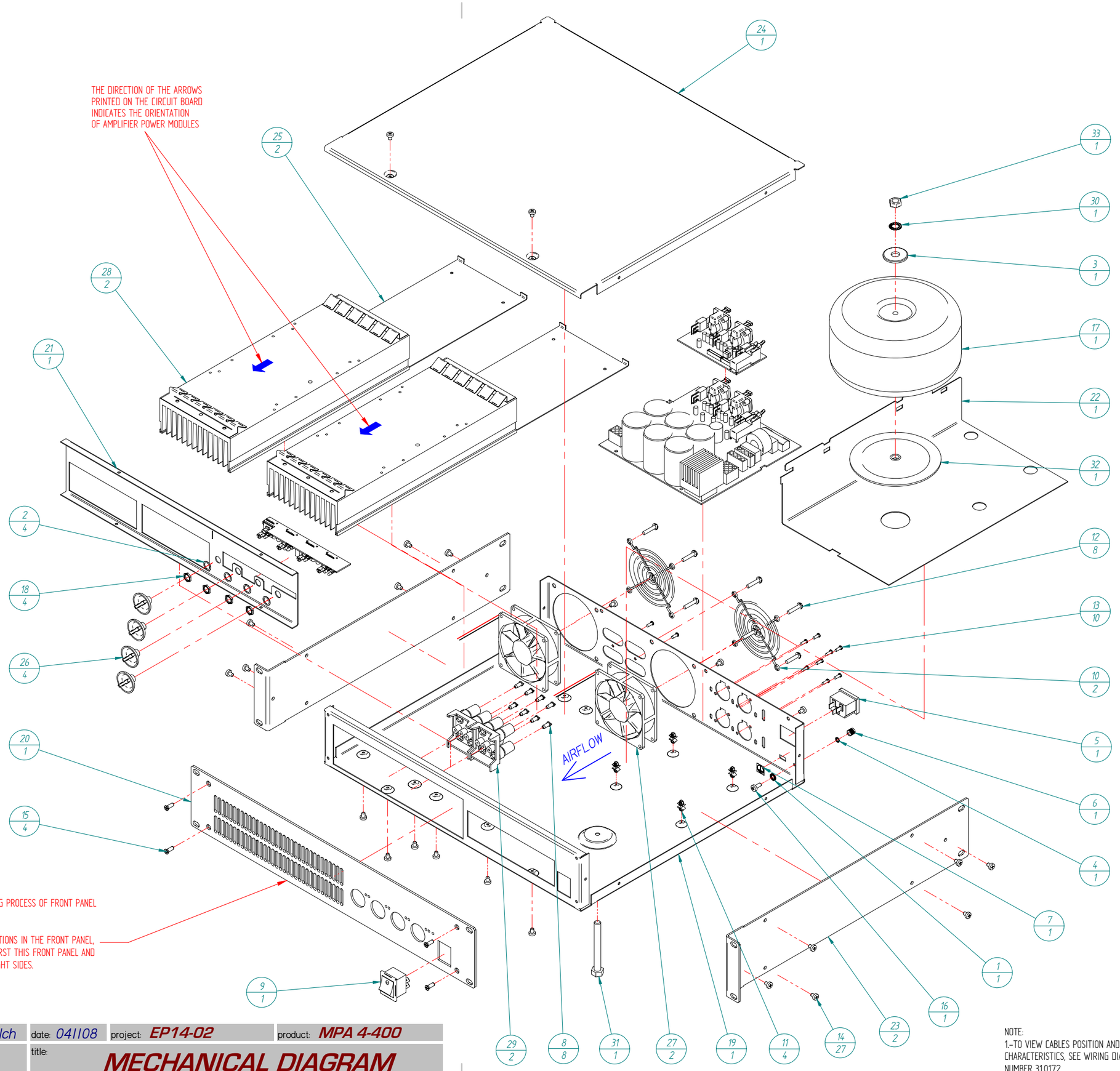




ECLEREE	drawn: J. Colomines	date: 020925	project: EP14-02	product: MPA4-400
number: 31.0175 version 01.00	approved:	title:	CONFIGURATION DIAGRAM	

Nº	Qty	ECLER Code	Description
1	1	FCARDE040000	TOOTHED WASHER M4
2	4	FCARDEPOTE00	ROTARY POT. WASHER M9
3	1	FCARM1050000	WASHER 10,5X30X2,5M
4	1	FCARS4000000	SEGMENTED WASHER M4
5	1	FCBASRE50000	MAINS SOCKET
6	1	FCBOR0030000	GROUND TERMINAL
7	1	FCETIZTT0000	EARTH TAG
8	8	FCINSPLA10/1100	BINDING POSTS SECURITY CAP
9	1	FCINTRED3000	MAINS SWITCH W/LIGHT
10	2	FCREJ0800000	FAN GRILLE 80x80
11	4	FCSEPWLS0600	PLASTIC SPACER 6MM
12	8	FCT060512000	SCREW 5,1x20
13	10	FCT400290900	SCREW 2,9x9,5 D7981F BLACK
14	27	FCT804006000	SCREW M4x6 SPANLO BLACK
15	4	FCT804012000	SCREW M4x12 D965 SPANLO
16	1	FCT850411000	SCREW M4x10 TRILOB. WHITE
17 *	1 *	FCTFTMPA8500 *	TOROIDAL TRANSFORMER *
18	4	FCTUPOT00000	ROTARY POT. NUT M9
19	1	FP0274900000	BASE CHASSIS
20	1	FP0275000000	FRONT PANEL
21	1	FP0275100000	FRONTAL CIRCUIT MEC. SUPORT
22	1	FP0275200000	MECHANICAL REINFORCEMENT
23	2	FP0275300000	LEFT/RIGHT SIDE
24	1	FP0275400000	TOP COVER
25	2	FP0275600000	MODULE SUPPORT PLATE 305 mm
26	4	FRBOTRD24000	ROTARY KNOB D24
27	2	FRVEN080B000	FAN 80x80 12VDC CABLE=300
28	2	GENERIC	HEATSINK POWER MODULE 305 mm
29	2	GENERIC	FOUR POLE BINDING POST
30	1	GENERIC	TOOTHED WASHER M8
31	1	GENERIC	SCREW M8 TRANSFORMER
32	1	GENERIC	TRANSFORMER RUBBER DISC
33	1	GENERIC	TRANSFORMER NUT M8

*FOR 100V UNIT, TRANSFORMER CODE FCTFTMPA9000



NOTE:
1.-TO VIEW CABLES POSITION AND WIRING CHARACTERISTICS, SEE WIRING DIAGRAM NUMBER 31.0172

ECLER

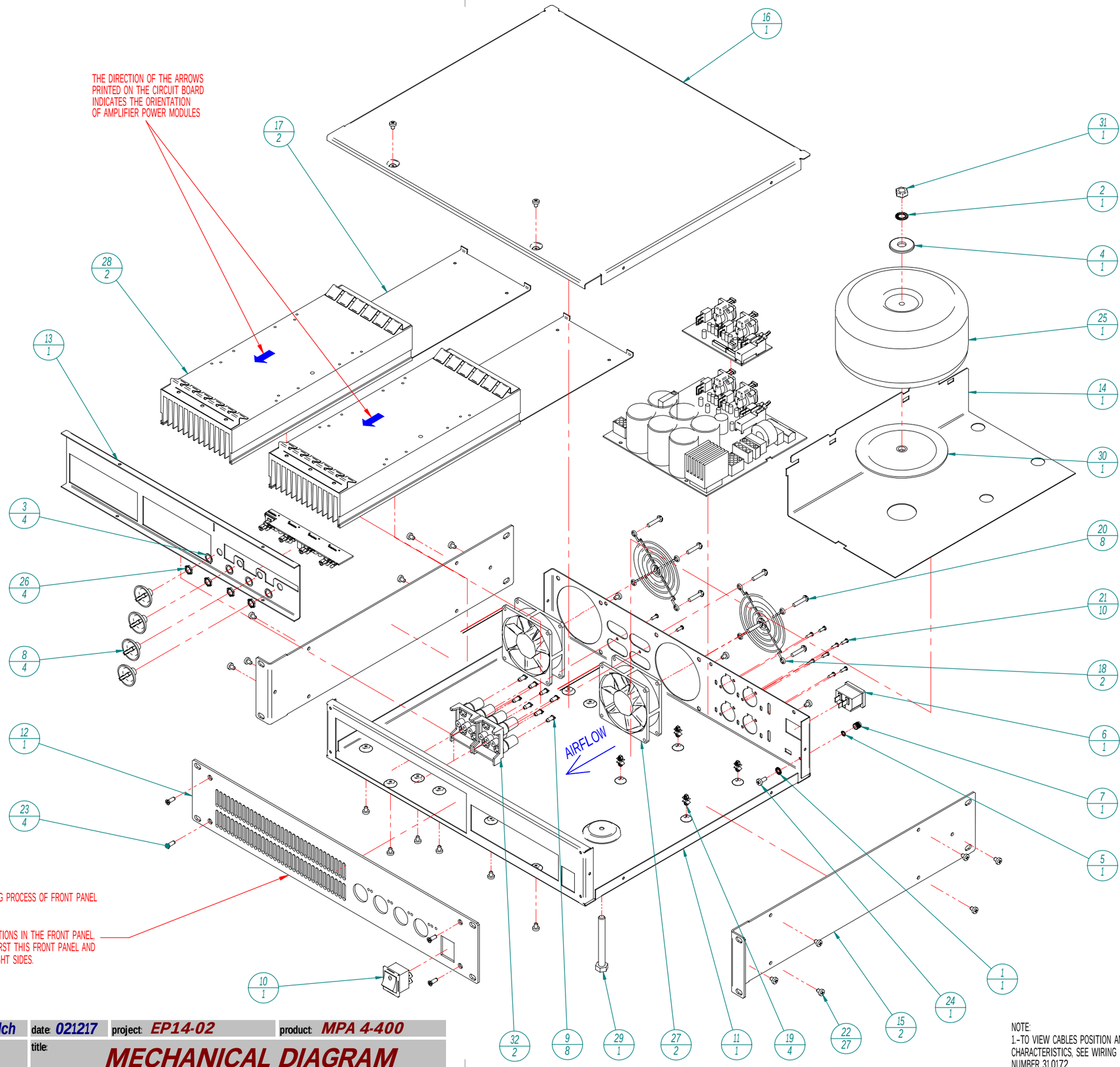
drawn: Jordi Folch | date: 041108 | project: EP14-02 | product: MPA 4-400

approved: | title: **MECHANICAL DIAGRAM**

number: 30.0186 version 01.02

Nº	Qty	ECLER Code	Description
1	1	FCARDE0400	TOOTHED WASHER M4
2	1	FCARDE0800	TOOTHED WASHER M8
3	4	FCARDEPOTE	ROTARY POT. WASHER M9
4	1	FCARM10500	WASHER 10,5X30X2,5M
5	1	FCARS40000	SEGMENTED WASHER M4
6	1	FCBASRE500	MAINS SOCKET
7	1	FCBOR00300	GROUND TERMINAL
8	4	FCBOTD2400	ROTARY KNOB D24
9	8	FCINSPLA10/11	BINDING POSTS SECURITY CAP
10	1	FCINTRED30	MAINS SWITCH W/LIGHT
11	1	FCMEC02749	BASE CHASSIS
12	1	FCMEC02750	FRONT PANEL
13	1	FCMEC02751	FRONTAL CIRCUIT MEC. SUPORT
14	1	FCMEC02752	MECHANICAL REINFORCEMENT
15	2	FCMEC02753	LEFT/RIGHT SIDE
16	1	FCMEC02754	TOP COVER
17	2	FCMEC02756	MODULE SUPPORT PLATE 305 mm
18	2	FCREJ08000	FAN GRILLE 80x80
19	4	FCSEPWLS06	PLASTIC SPACER 6MM
20	8	FCT0605120	SCREW 5,1x20
21	10	FCT4002909	SCREW 2,9x9,5 D7981F BLACK
22	27	FCT8040060	SCREW M4x6 SPANLO BLACK
23	4	FCT8040120	SCREW M4x12 D965 SPANLO
24	1	FCT8504110	SCREW M4x10 TRILOB. WHITE
25*	1*	FCTFTMPA85*	TOROIDAL TRANSFORMER*
26	4	FCTUPOT000	ROTARY POT. NUT M9
27	2	FCVEN08000	FAN 80x80 12VDC
28	2	GENERIC	HEATSINK POWER MODULE 305 mm
29	1	GENERIC	SCREW M8 TRANSFORMER
30	1	GENERIC	TRANSFORMER RUBBER DISC
31	1	GENERIC	TRANSFORMER NUT M8
32	2	GENERIC	FOUR POLE BINDING POST

*FOR 100V UNIT, TRANSFORMER CODE FCTFTMPA90



OLD VERSION

NOTE ABOUT ASSEMBLING PROCESS OF FRONT PANEL AND LEFT/RIGHT SIDES:

TO AVOID DEFORMATIONS IN THE FRONT PANEL, YOU MUST ASSEMBLE FIRST THIS FRONT PANEL AND AFTER BOTH LEFT & RIGHT SIDES.

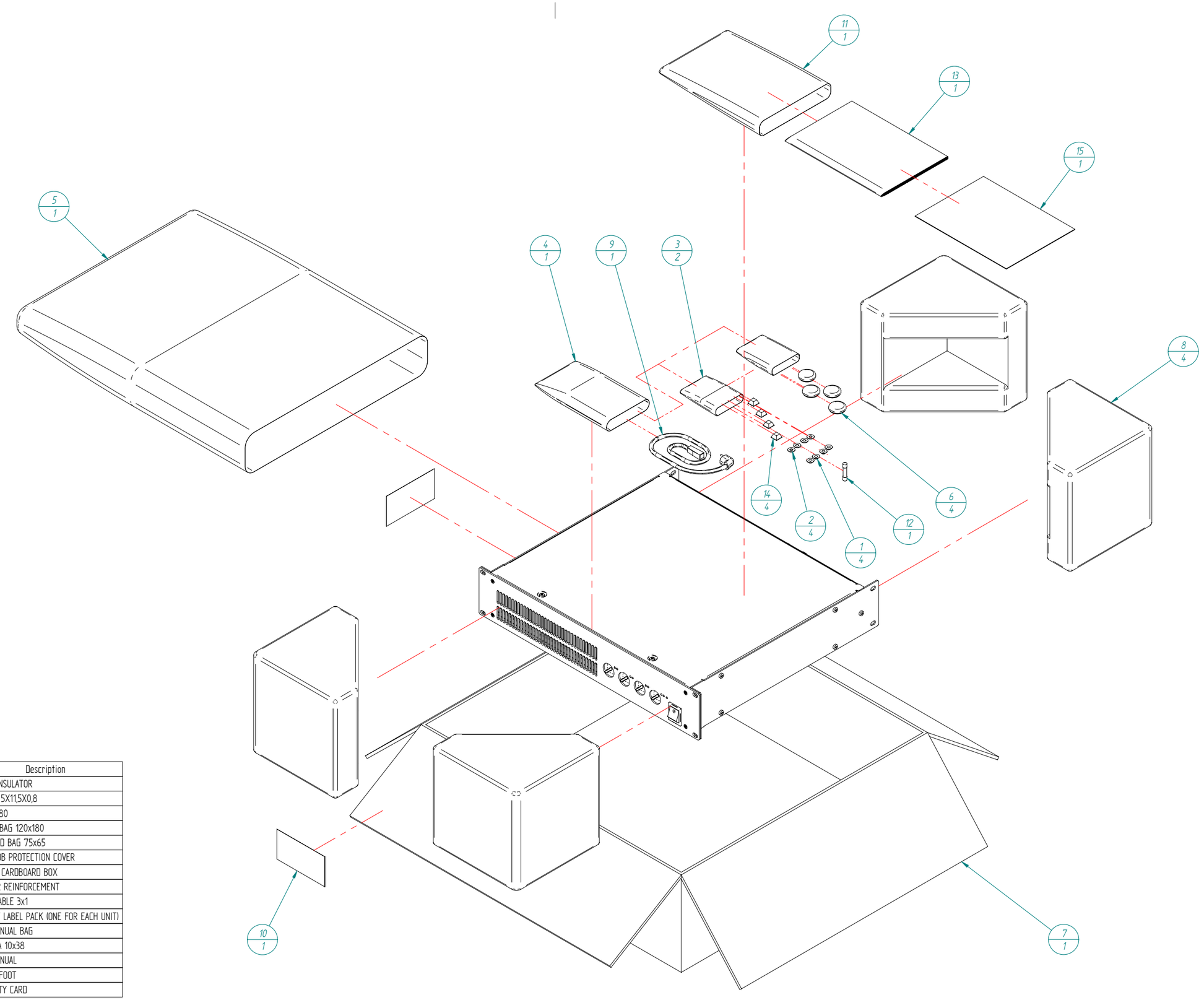
NOTE:
1.-TO VIEW CABLES POSITION AND WIRING CHARACTERISTICS, SEE WIRING DIAGRAM NUMBER 31.0172

ECLER

drawn: Jordi Folch | date: 021217 | project: EP14-02 | product: MPA 4-400

approved: | title: **MECHANICAL DIAGRAM**

number: 30.0186 | version 01.01



N°	Qty	ECLER Code	Description
1	4	FCARAT300000	SCREW INSULATOR
2	4	FCARN5000000	WASHER 5X11,5X0,8
3	2	FCBOL0010000	BAG 60x80
4	1	FCBOL0020000	PLASTIC BAG 120x180
5	1	FCBOLS020000	STANDARD BAG 75x65
6	4	FCBOTD240100	ROT. KNOB PROTECTION COVER
7	1	FCCAJSTA1900	PACKING CARDBOARD BOX
8	4	FCCANT116000	INTERIOR REINFORCEMENT
9	1	FCCONX017500	MAINS CABLE 3x1
10	1	FCETI0951140	PRODUCT LABEL PACK (ONE FOR EACH UNIT)
11	1	FCFUNMAN0000	USER MANUAL BAG
12	1	FCFUS8040000	FUSE 16A 10x38
13	1	FCMANMPA1200	USER MANUAL
14	4	FCPIE1125500	RUBBER FOOT
15	1	FCTARJG00000	WARRANTY CARD

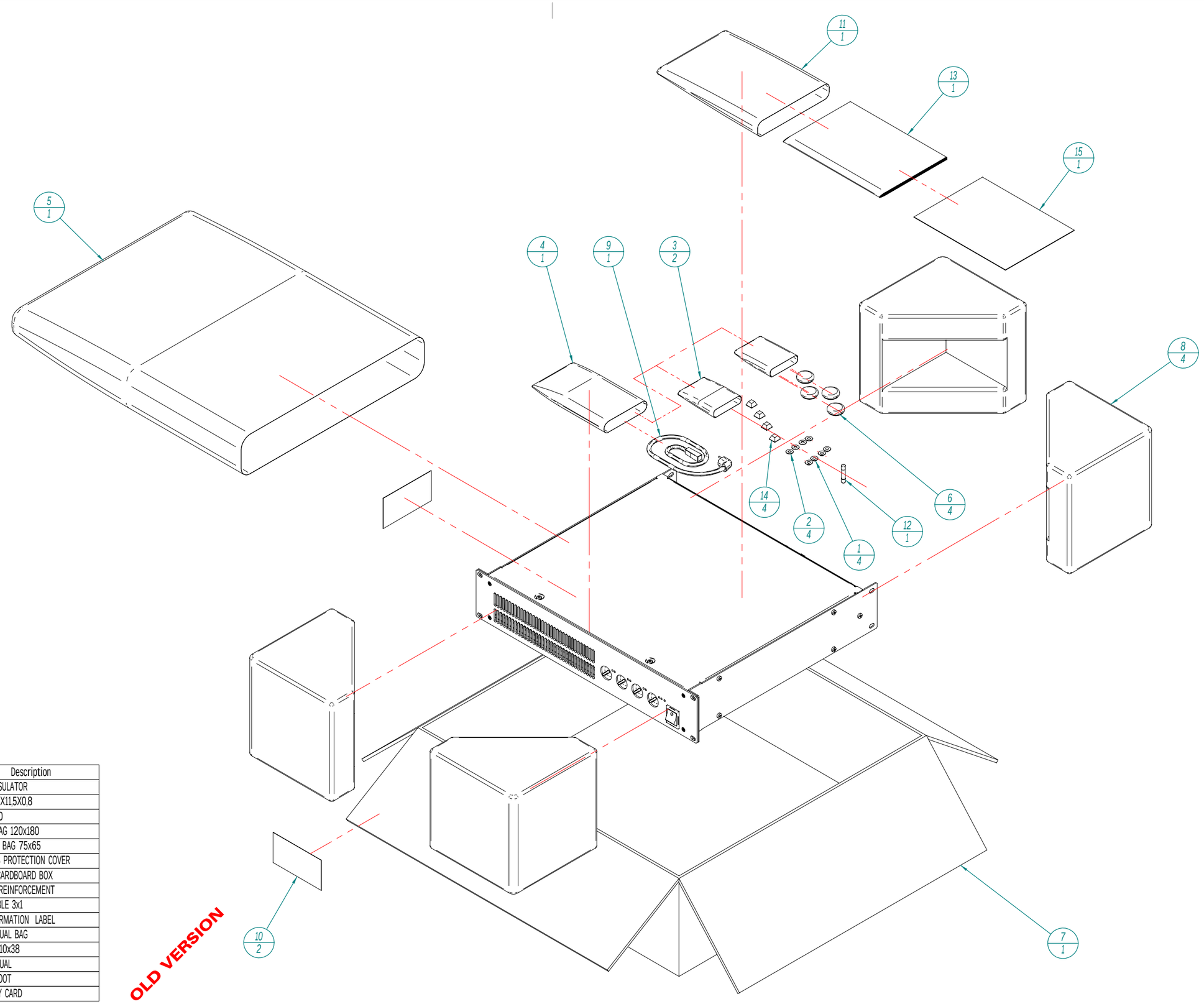
ECLER

drawn: Jordi Folch | date: 040213 | project: EP14-02 | product: MPA 4-400

approved:

number: 32.0097 | version 01.01

title: **PACKING DIAGRAM**



Nº	Qty	ECLER Code	Description
1	4	FCARAT3000	SCREW INSULATOR
2	4	FCARN50000	WASHER 5X11,5X0,8
3	2	FCBOL00100	BAG 60x80
4	1	FCBOL00200	PLASTIC BAG 120x180
5	1	FCBOLS0200	STANDARD BAG 75x65
6	4	FCBOTD2401	ROT. KNOB PROTECTION COVER
7	1	FCCAJSTA19	PACKING CARDBOARD BOX
8	4	FCCANT1160	INTERIOR REINFORCEMENT
9	1	FCCONX0175	MAINS CABLE 3x1
10	2	FCETICAJA0	UNIT INFORMATION LABEL
11	1	FCFUNMAN00	USER MANUAL BAG
12	1	FCFUS80400	FUSE 16A 10x38
13	1	FCMANMPA12	USER MANUAL
14	4	FCPIE11255	RUBBER FOOT
15	1	FCTARJG000	WARRANTY CARD

OLD VERSION

ECLER

drawn: Jordi Folch | date: 020925 | project: EP14-02 | product: MPA 4-400

approved:

number: 32.0097 | version 01.00

title: **PACKING DIAGRAM**